

The “Real” World Out There: Non-Market Strategy and Cognition. Firm and NGO Knowledge Structures in Ecuador

Rafael Lucea
MIT Sloan School of Management

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*En este mundo traidor, nada es verdad ni mentira,
todo es según el color del cristal con que se mira.
(Ramón de Campoamor)*

*In this treacherous world there is no truth and no
lies, it all depends on the color of the glass through
which you view it (Ramon de Campoamor)*

Abstract

In this paper I study the relations between oil companies and Non Government Organizations (NGOs) operating in Ecuador. While differences in resources and goals across organizations do not satisfactorily explain organizational behavior, I propose that the cognitive structures prevalent in each organization may have a fundamental influence on the relations established between firms and non-market actors such as NGOs.

My analysis shows that mental maps held by oil managers are not only significantly different from those of NGO managers, but that these cognitive structures also exhibit considerable variation within each type of organization. The nature and magnitude of these differences provide valuable insights into a better understanding of some of the classic problems these organizations face when interacting with each other.

Introduction

Scholars in the International Business (IB) tradition were, arguably, among the first to note the crucial role played by non-market actors in the operations and performance of firms (Boddeyn 2003). Being particularly sensitive to the institutional idiosyncrasies that multinational firms had to accommodate, the IB field paid careful attention to the ways in which national governments could hamper or support the operations of foreign and local firms. This somewhat narrow vision of non-market environments –non-markets as governments– would be radically expanded in the mid 1980s by a number of management researchers interested in the impact that a broad spectrum of actors, including civil society organizations, communities, employees, NGOs and, obviously, governments had on the value of firms (Freeman and Reed 1983).

After Freeman's crucial redefinition of the non-market domain of firms (Freeman 1984), research in this field blossomed. Non-market scholars set out to test the relationship between the social performance of firms and their financial performance (Waddock and Graves 1997; Margolis and Walsh 2001; Orlitzky, Schmidt et al. 2003), the attributes that non-market actors had to display to capture the attention of firm managers (Mitchell, Agle et al. 1997), the kinds of behaviors that made firms more susceptible to being the target of social action (Eesley and Lenox 2006), how non-market issues arise (Dutton, Fahey et al. 1983; Dutton, Walton et al. 1989) and evolve (Mahon and Waddock 1992), and how firms scan their non-market environment and prepare to react to it (Dutton 1993).

With notable exceptions (Dutton and Jackson 1987), the majority of these studies were developed from an objectivist perspective. That is, a firm's non-market context has been seen as an objective reality where facts and objects have a unique and uncontroversial meaning shared by all actors involved. As a consequence, empirical studies have measured organizational resources in terms of dollars or man hours; organizational goals have been assumed to be shared not only by the members of a given organization but also, at a generic level, by all the organizations of a given type; and individual and organizational behavior has been described as a concrete sequence of causes and effects that responded to a simple logic of economic –in the broad sense of the term– rationality.

Nevertheless, objectivist approaches alone do not seem to capture fully the complexities of the interactions between market and non-market organizations. Given the broad spectrum of performance metrics, goals, and values espoused by firms and non-market actors, it is difficult to explicate the outcomes of their interaction only through *objective* measures of organizational capability. Despite having reached a weak consensus on some of the main topics of the field, (Orlitzky, Schmidt et al. 2003) researchers in this tradition have long struggled to provide consistent explanations (Margolis and Walsh 2001) that are robust across a broad spectrum of metrics (Griffin and Mahon 1997).

In this paper I propose that since the 'objective conditions' of a non-market environment are subject to multiple interpretations, managerial cognition may have a strong influence on the factors that are commonly employed to explain non-market behaviors and outcomes.

The possibility that managerial cognition might have a central role in explaining the interaction between firms and non-market actors emerged during the exploratory phase of my work on the oil industry in Ecuador. The purpose of this initial stage of research was to identify the organizational attributes of firms and NGOs involved in the exploration and extraction of oil, and to find out their relative importance in informing organizational behavior. In order to ground my interviewees' explanations, I used a recent and extremely controversial oil infrastructure project as straw-topic. The outcome of this work was that attributes such as access to resources, organizational structure or, the scope and nature of the organizational mission are certainly central to explaining behavior. More interestingly, however, was the fact that the *meaning and implications* attributed to a very concrete set of events –the construction of a pipeline– varied enormously from organization to organization. These variegated interpretations, in turn, appeared to have a crucial role in shaping organizational behavior either directly or by shaping the ways in which organizations got access to resources, defined their missions or developed their strategies and programs.

In February of 2001, the Ecuadorian government approved for the construction of a pipeline that would cross the country transporting heavy crude extracted in the Amazon to the port town of Esmeraldas in the Pacific Ocean. A consortium of foreign companies founded OCP Corp.; a locally incorporated company that would be in charge of financing, building and operating the pipeline. The whole process of design, consultation, construction and remediation was heavily contested by a broad spectrum of NGOs, communities, and individuals, and resulted in a heated national debate over the role that oil

exploitation should play in the economy and livelihood of Ecuadorians. Ultimately, on November 11th 2003 , the ‘Oleoducto de Crudos Pesados’ (OCP) was inaugurated and started to carry the crude from the heart of the Amazon to tankers in Esmeraldas and, from there, to the western markets of the U.S. A year and a half later, the OCP Corporation signed an agreement with the Ecuadorian government that resulted in the creation of the Ecofondo, one of the largest corporate environmental funds (US\$ 16.9M) in Latin America. The structure and administration of the fund was the result of a two year process involving the company, the government and a number of prominent Ecuadorian social and environmental NGOs.

Shortly after the signing of these accords, in the fall of 2005, I carried out 20 exploratory, in-depth interviews with representatives of oil companies, NGOs, indigenous communities and the government. One of the main outcomes of this preliminary research was the realization that the same set of events had been interpreted in radically different ways, not only by different types of organizations, but also within each camp. Equally revealing was that all interviewees used past incidents related to oil exploration, but not necessarily to the project in question, to justify present positions and behaviors vis-à-vis specific actors. For example, one common complaint of the oil companies was that they were being judged on the basis of what one interviewee called, the “Texaco imaginary”. Texaco, presently facing a multi-billion dollar law suit in Ecuador for environmental damages, was the first foreign firm to exploit oil in the Ecuadorian Amazon. Its operational, social and environmental practices were, according to many of the oil firm managers I interviewed, little short of appalling. However, these same managers argued that the standard operating procedures of

thirty years ago had nothing to do with today's sophisticated and much safer practices. Nevertheless, the old pattern of behavior was precisely the one invoked by most of their present day stakeholders in public debates. Indeed, the NGO and indigenous community leaders I interviewed, consistently pointed at chains of deceptive behaviors by firms, frequently unconnected to each other or to the case at hand, to support their present stance and behavior towards the construction of the OCP. More surprisingly, this sense-making mechanism was satisfactory justification for some NGOs to radically oppose further oil development in the Amazon, while other NGOs' used it as a rationale for collaborating with oil firms to "minimize the damage they will cause anyway".

In sum, a single set of *objective conditions* produced different "real worlds" in each organization I talked to. In addition, these differing perceptions of the world triggered widely different responses within and across types of actors. Finally, this variety in responses could not be merely explained in terms of the relative distribution of, or access to, resources, or to differences in organizational goals. Rather, it was strongly influenced by the cognitive structures of the actors involved; cognitive structures that, in turn, had developed through a dialectical process that spanned several decades.

Cases like this invite one to critically rethink the merit of some of the established tenets in the non-market environment literature. First, they lend credence to Wolfe and Putler's (2002) criticism of role-based segmentation of a firm's stakeholders. Contrary to the common practice of assuming homogeneity among types of stakeholders such as NGOs, communities, governments or employees, these authors propose that more refined criteria

for categorizing stakeholders are required for the effective management of non-market environments. Second, they question the adequacy of separating stakeholders and issues as competing, rather than complementary ways of organizing non-market action by firms (Bigelow, Fahey et al. 1991; Bigelow, Fahey et al. 1993). Since individual and organizational cognitive structures are shaped by interactions among actors on concrete events, it is difficult to understand how they came to hold a particular worldview without knowing the issues they got involved with in the past. Third, it invites reflection on the role played by individual and organizational cognition on such central topics for the field as issue evaluation, coalition formation and issue resolution (Mahon, Pursey et al. 2003). Ultimately, it suggests that adequate knowledge of the structure and mechanisms at play in a firm's non-market environment may result in an important source of sustainable competitive advantage (Huff and Jenkins 2002).

Appealing as it is to propose that a phenomenologist approach to the study of non-market environments may shed new light on its workings, there is a fundamental, if extremely commonsensical, pre-condition that must be satisfied: there needs to be significant variance among the cognitive structures of the actors under study. That is, the starting point for a subjectivist approach to non-market environments requires proof that different actors' perspectives of the world vary enough so that differences in their behavior can be attributed to the fact that they hold different cognitive structures. Providing such a starting point is the ultimate –and very basic– purpose of this paper. In addition to testing *if* cognitive structures among actors change, it also provides insights on *how* and *how much* they differ.

In order to establish this “sufficient-dispersion” condition, I undertook a second, much more systematic, phase of research in Ecuador. Rather than concentrating on a particular episode of the NGO-oil firms interaction, the objective now was to elicit and compare the cognitive structures held by firm and NGO managers at a given moment in time.

Consistent with the insights obtained in the exploratory part of the study, the elicitation of these worldviews would need to reflect the relational nature of structuring one’s environment employed by my interviewees. That is, making sense of one’s environment is strongly dependent on what other actors we know to be operating in it, and on how one relates to each one of them. Therefore, the characterization of my interviewees’ mental maps had to, at least, explicitly identify the relative knowledge that each actor had of the organizational field (DiMaggio and Powell 1983) and their subjective perspective of how each actor in it was positioned vis-à-vis all of the other actors. This explicit relational approach to mapping knowledge structures is not common to the managerial cognition field (Bougon, Weick et al. 1977; Laukkanen 1994). It was, therefore, necessary to adapt a systematic qualitative technique commonly known as pilesorting (Bernard 1995), and the development of an innovative suite of measures and tests fitting the objectives of the study.

The results of this exercise show that (1) while there are significant differences between the mental maps of firms and NGOs and (2) among the members of each type of organization, (3) there is a moderate level of overlap between the representations made by firm and NGO managers of the market and non-market environments. These results not

only satisfy the sufficient-dispersion which is the main objective of this paper, but also shed light on some central topics of the literature on non-market strategy.

The remainder of this paper is structured as follows. First, I position this study with reference to the non-market and managerial cognition literatures. Then, I explain the research design and the method employed to elicit the cognitive structures of firm and NGO managers. The section that follows presents results. I finish the paper by reviewing the implications that this study has for the fields of non-market strategy and managerial cognition.

Reviewing the literature

Management scholars have approached the relationships between firms and non-market actors such as governments, interests groups, NGOs and public opinion from two competing perspectives (Mahon, Pursey et al. 2003). On the one hand, the Strategic Issue Management school (Ansoff 1980) takes the concept of issue as the organizing principle of the relationships between firms and their non-market environment. Issues are defined as “gaps between stakeholder expectations and an organization’s policies, performance, products or public commitments” (IMC). Issue management, therefore, is the process by which firms close this gap between expectations and reality. This can be done by either changing the firm’s behavior or the firm stakeholders’ expectations. By contrast, Stakeholder Theory (Freeman 1984; Donaldson and Preston 1995) is rooted in the idea that firms must respond to the claims of a variety of legitimate stakeholders and to the claims of

other actors that, legitimate or not, can affect the firm's performance. Managing the relative power of the firm vis-à-vis key stakeholders is the ultimate goal of this school of thought.

As a consequence of these notably different starting points, stakeholder theorists and issue management scholars have developed significantly separate research agendas. A lot of the effort of the former group has focused on addressing three main questions: (1) who (or what) are the stakeholders of a firm? (2) whom do managers pay attention to? (Mitchell, Agle et al. 1997) and (3) what is the relationship between Corporate Social Performance and Financial Performance? (Waddock and Graves 1997; Margolis and Walsh 2001; Orlitzky, Schmidt et al. 2003). By contrast, scholars working from the Issue Management tradition have devoted enormous attention to analyzing the 'life of issues'. That is, the evolutionary process that spans from the emergence of an issue to its resolution (Post 1978; Buchholz 1988; Bigelow, Fahey et al. 1991; Mahon and Waddock 1992; Bigelow, Fahey et al. 1993).

Despite the differences in paradigm conceptualization, basic objectives, and research questions espoused by these two schools of thought, both traditions share a strong objectivist approach. That is, they have traditionally seen the world as an uncontroversial, readily observable and measurable reality. For example, social performance of firms has been variously assessed in terms of corporate social impacts; corporate programs and corporate policies (Wood 1991; Wood and Jones 1995); the all-pervasive KLD¹ multidimensional rating schemes (Waddock and Graves 1997); the number of protests, boycotts and civil suits they have endured (Eesley and Lenox 2006); or reputation ratings

¹ KLD stands for Kinder, Lydenberg, Domini & Co

like those of Fortune magazine (Wartick 1992; Preston and O'Bannon 1997). Financial performance, on the other hand, has been assessed through standard accounting measures such as ROA, ROI or stock market valuations (Frooman 1997). The salience of particular categories of stakeholders has been proxied by the level of resources they command, or directly assessed through surveys given to firm managers (Henriques and Sadorsky 1999). Finally, issue evolution has been assessed through news press releases (Wartick 1992) or historical accounts of events. In any case, all these studies implicitly provide a picture of the interactions between market and non-market actors as a matter of “social physics”, (Bordieu and Wacquant 1992) where particular chains of causes and effects lead indefectibly to specific outcomes.

It would be unfair, though, not to acknowledge that a number of authors in both traditions have explicitly acknowledged the central role of meaning attribution in explaining non-market action. For example, Mahon and Waddock (1992) argue that “objective conditions are the raw material of issues,” and that when these conditions change they are subject to reinterpretation, giving rise to new issues and influencing the involvement of different groups of stakeholders. Similarly, Rowley and Moldoveanu (2003) emphasize the importance of symbolic action by some pressure groups. Finally, Dutton, with several co-authors, has explored the processes of meaning attribution that transform a mere set of events into a strategic issue (Dutton, Fahey et al. 1983; Dutton and Jackson 1987). In spite of these works, however, relatively little of this subjectivist perspective has trickled down to *empirical* studies of the interactions between firms and other non-market actors (but see (Wolfe and Putler 2002) for an exception).

In stark contrast to the non-market scholars' world of social physics, increasing attention has been paid in mainstream (market) strategy circles to what happens 'inside the head of the strategist' (Mintzberg, Ahlstrand et al. 1998). Indeed, the literature on managerial and organizational cognition has developed at a frantic pace in the last 20 years (Walsh 1995). Cognitive approaches to individual and collective decision making stem from the realization that the capacity for individuals to process information is significantly limited (March and Simon 1958; Cyert and March 1963). In order to make their way through this informational maze, managers develop and employ knowledge structures that categorize the different bits of information they receive, filter those deemed irrelevant and highlight those that appear of more consequence for the survival of the organization. These cognitive shortcuts, however, are not devoid of risks since individuals and organizations are vulnerable to overlooking or emphasizing certain aspects of their informational contexts which can lead to poor decisions with very distinct risks for the survival of the organization.

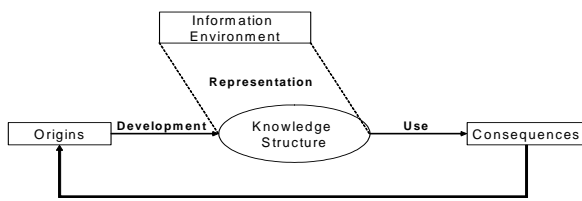
In his comprehensive review of this literature, Walsh (1995) proposed a taxonomy of the studies addressing the relevance of knowledge structures². A first group of studies is one whose primary goal is to bring forth the attributes of the representations employed by managers to make sense of their information environment (Representation). A second type of studies related these representations to outcomes of consequence for the organization (Use). Finally, a third group of studies problematizes the origins and sources of change in the mental maps held by individuals (Development). While this segmentation helps

² Other authors refer to these knowledge structures as 'cognitive maps', 'mental maps', 'interpretive schemes', 'folk theories' or 'frames of reference', among others (Walsh, 1995)

organize the literature in this field, it is important to emphasize that all three processes are intimately intertwined³. In addition to the predominant domain of the study, Walsh uses the level of analysis targeted by different authors to more finely classify the main works of this literature. The levels he establishes are: the individual, the group, the organization and the industry.

Walsh’s taxonomy serves well to position the present paper among other studies on managerial cognition and, perhaps more importantly, to highlight where it is attempting to break new ground. First of all, the work presented here stands squarely in the Representation tradition. That is, it seeks to provide a description of how different actors perceive the information environment in which they interact. Explanations of how mental maps are linked to organizational non-market behavior and performance, important as they are to the strategist (Schendel 1997), form part of future research. Secondly, this study is pushing the boundaries of previous research on two fronts. First, it moves up one level of analysis. Instead of simply analyzing “same-type” of organizations as in industry analysis (Porac, Thomas et al. 1995; Hodgkinson 2005), it looks at the knowledge structure that managers have of part of their organizational field (DiMaggio and Powell 1983). Secondly, the role of cognition between market and non-market actors is explored from both sides of

³ Walsh (1995) provides the following explanatory figure:



Knowledge Structure Research: An organizing framework (Walsh, 1995)

the fence. That is, from the perspective of both firm and NGO managers. In sum, while this work cannot claim that cognition influences non-market behavior, it provides a fresh approach to the field of non-market research by bringing in the role of cognition, and to the literature on cognition by bringing in the perspectives of firm *and* NGO managers.

Structure of the study

As was explained earlier, the second phase of my research on the Ecuadorian oil sector attempted to test whether the mental maps of firm and non-market actors presented a large enough degree of dissimilarity to possibly explain differences in behavior.

In order to make the study manageable, I considered two types of organizations: non-government organizations (NGOs) and firms in the oil sector. However, even this timid attempt to move from the industry to the organizational-field level of analysis increases notably the complexity of the data collection process. More concretely, it requires that four separate sets of representations be elicited: (1) the mental maps that NGO managers have of NGOs operating in Ecuador (the NGO-space), (2) the mental maps that NGO managers have of oil firms operating in Ecuador (the FIRM-space), and the mental maps that FIRM managers have of the (3) NGO-space and of the (4) FIRM-space.

Given the obvious difficulty of directly observing individual and collective knowledge structures, their proper characterization and representation have been a central problem for managerial cognition scholars since the inception of the field. Despite the importance of this question, relatively little consensus has been developed on this issue over the years

(Huff and Jenkins 2002; Hodgkinson 2005). At the risk of contributing to this cacophony of perspectives, I propose that there is a substantial relational component to the way managers make sense of their environment. This approach is a response to the way in which respondents in the first phase of the study described the Ecuadorian oil industry non-market environment. More concretely, interviewees started by emphasizing differences and similarities among actors' behaviors. Interestingly, categorizing a given domain by grouping subsets of its elements depends on how many elements of this domain any given respondent happens to know, and how well she happens to know them. Finally, consistent with previous studies on issue identification and classification (Dutton, Stumpf et al. 1991), respondents attached substantive and value judgments to the members of each group. In sum, three basic dimensions seemed to be essential to properly represent the knowledge structure of the non-market environment of the oil industry in Ecuador: (1) the relative degree of *knowledge* that a given respondent had of the NGO and the firm sector, (2) the degree of similarity or *association* that a given respondent perceived between any two firms or NGOs, and (3) the substantive *categories* that a respondent employed to structure the NGO and the firm space. The methodology developed to elicit the mental maps of the participants in this study, explained later, attempts to explicitly capture these three dimensions.⁴

⁴ This approach diverges substantially from the underlying logic of causal maps (Bougon et al 1977; Laukkanen 1994), probably the most common way to elicit cognitive structures. Causal maps take as starting point the fundamental constructs that interviewees deem central to make sense of the structure and dynamics of a given domain. Here, the presence or absence of other actors is relegated to a secondary plane. Hierarchical categorization methods (Porac et al. 1987, Hodgkinson et al. 1994) implicitly take the same elements I take in this study: categories, associations and knowledge. However, these methods take as starting point the different categories or buckets in which actors are classified. By contrast, the approach suggested here places emphasis on the bottom-up process –from what actors see in their context to higher levels of abstraction- for the creation of cognitive structures highlighted by authors such as Louis and Sutton (1991).

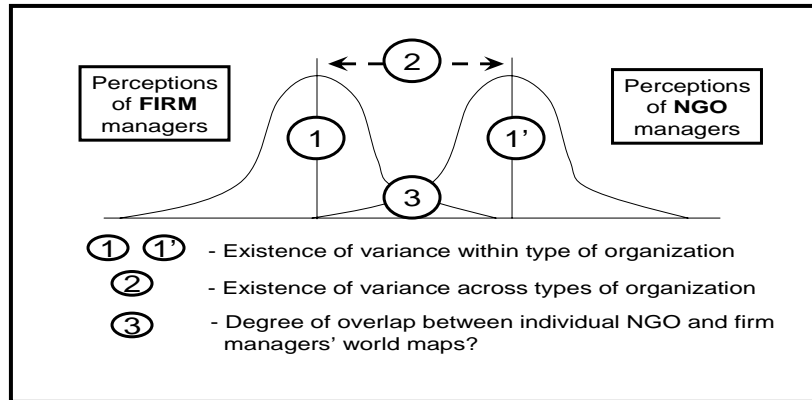
Overall, the raw data from which the sufficient-dispersion condition would be later assessed consisted of four different mental maps each of which would be defined along three dimensions. Table 1 summarizes the research design of the second phase of this research study.

Table 1- Research design: Mental map elicitation

	NGOs	Firms
NGO-space	Knowledge Associations Categories	Knowledge Associations Categories
Firm-space	Knowledge Associations Categories	Knowledge Associations Categories

Assessing what sufficient-dispersion means and how it is evaluated in this study also requires a short explanation. In this study I compare the mental maps of firm and NGO managers on three levels (see figure 1). First, I explore whether there is significant dispersion *within* types of organizations (1 and 1' in figure 1). That is, do different firm managers hold significantly different representations of the firm and NGO spaces? And, conversely, do different NGO managers hold significantly different representations of the firm and NGO spaces? The second level of comparison is *between* types of organizations. In order to carry out such comparison, I test whether the cognitive structure that firm managers hold, as a group, are different to the ones held by NGO managers, also as a group. Finally, a third level of analysis looks at the possible level of *overlap* (3 in figure 1) that firm and NGO managers may have of their respective mental representations of how the firm and the NGO spaces are structured.

Figure 1 - Comparisons of cognitive structures



Notice that since we are making 3 types of comparisons (within, between and overlap), on the cognitive structures held by 2 types of managers (firms and NGOs) on 2 organizational spaces (the oil firm sector and the NGO sector), along 3 different dimensions (knowledge, associations and categories), the analysis to carry out is, of necessity, notably complicated. Table 2 provides a general perspective of how dispersion of cognitive structures is evaluated in this study.

Table 2 - Overview of the analysis

DIMENSION	SPACE	TYPE OF COMPARISON			
		Within		Between aggregation of FIRM and NGO respondents	Overlap individual FIRM and NGO respondents
		FIRM respondents	NGO respondents		
Knowledge	Firm Space	1	2	5	7
	NGO Space	3	4	6	8
Associations	Firm Space	9	10	13	15
	NGO Space	11	12	14	16
Categories	Firm Space	17	18	21	23
	NGO Space	19	20	22	24

NOTICE: The numbers in the table above do NOT have any intrinsic meaning; they are used to guide the explanation of the analysis in the Results section of the paper. The numbers in brackets at the end of each Results sub-section title correspond to the comparisons in this table.

Methodology

In order to explicitly depict the mental maps of my interviewees along the three dimensions presented above, I decided to employ a pilesorting technique. This methodology, traditionally employed by anthropologists to depict cultural domains (Burton and Nerlove, 1976, Weller and Romney, 1988, Boster and Johnson, 1991, Borgatti, 1996), lends itself particularly well to highlighting similarities and differences that items being sorted have vis-à-vis other objects. Moreover, it had the added advantage of ease of administration; avoided the risk of deep cuing from the interviewer and; as other techniques commonly used to elicit mental maps (Bougon, Weick et al. 1977; Laukkanen 1994), allowed for comparison and aggregation of cognitive structures. While some authors have pointed at a number of shortcomings that this technique may present (Morgan 1987; Hodgkinson 2005), I deemed it the most appropriate data collection technique for this project.

Drawing mental maps by pile-sorting items

The mechanics of pilesorting may vary depending on the object of study and the research question. For this study, each respondent was presented with a deck of cards. Each card had the name of one organization. The respondent was then asked to classify the cards following a two stage process. First, she had to make two piles; one with those organizations that she was familiar with and another one with those she did not know. Then, the respondent was asked to split the pile of the organizations she knew into several piles according to how similarly she perceived these organizations to behave. Respondents were allowed to make as many or as few groups as they needed and they could also make single-card piles.

Once the piles were defined, the respondent was asked to provide a ‘label’ and a short explanation of the characteristics of each pile. Next, she was asked to explain the main differences she saw between groups. This process was carried out twice in every interview. Respondents working in a NGO (firm) were first asked to pilesort a deck of cards with the name of one NGO (firm) in each card. Then, they were asked to repeat this process with a deck containing names of firms (NGOs). That is, each respondent was asked to provide first a classification of their own space and, afterwards, a classification of the ‘alter’ space.

The three dimensions described above were operationalized as follows. Knowledge of the field was measured by the number of cards each interviewee discarded in the first phase of the exercise. A measure of association between any two NGOs or firms was determined by their being in the same pile or not. Finally, information on the substantive categories employed by respondents to structure both spaces was provided by the labels used to describe a given pile.

Card decks and interviewees

The NGO card deck employed for this exercise contained the names of 65 NGOs. The FIRM card deck included the names of 29 companies. The criterion for selecting which NGOs to include in the card decks, among the 2000-plus estimated to operate in Ecuador, was the result of a free-listing⁵ exercise carried out during the first phase of this research.

⁵ “[this] technique basically consists of asking a small set of respondents (say 30) to name (or, ideally, write down) all items matching a given description. Once the data have been collected, a number of analyses are possible. Often, the purpose of the free-listing task is to obtain a set of terms to be used in additional data collection tasks, such as pilesorts and ratings or rankings”. Borgatti (1996)

The over one hundred NGO names that came out of this exercise were then sorted in descending order according to how frequently they had been mentioned by my interviewees. The cutoff point (65) was chosen based on two criteria: frequency and ease of administration. While no clear ‘elbow’ was detected in the frequency distribution, organizations beyond position 65 were mentioned by only one of the interviewees. This number was also considered large enough to provide a rich discussion of the NGO sector while keeping within the time limits of the expected average interview length. The 29 firms chosen for the oil industry card deck consisted of the 27 ‘main operators’ that have worked at some point in the last 10 years in Ecuador. Another two companies, an oil transportation firm and an engineering contractor, were also included given their extremely high profile in the Ecuadorian upstream oil business. It is worth mentioning that even though in a number of cases two firms belonged to the same mother company⁶ they were included independently in the card deck.

In the second phase of the study, a total of 51 managers from 44 organizations performed the pilesorting exercise. 16 were managers working for oil firms while the remaining 35 were NGO managers. The majority of oil firm interviewees were the top responsible for the formulation and implementation of the community relationships programs of the company or the CEO. Most of the NGO managers interviewed were the managing directors of the organization or had been working with that particular NGO for at least 3 years. The pilesorting exercise was administered as a part of a more comprehensive interview. The average length of an interview was 2 hours. 49 of the 51 interviews were recorded.

⁶ Encana = Encana and AEC Ltd, Petrobras = Petrobras + Ecuador TLC, Techint = Techint + Tecpecuador, Sinergy group = Petrobell + Pacifpetrol

Appendix 1 provides the list and characteristics of the organizations in the card decks. The Methodology Annex explains, with a great level of detail, different aspects of how the technique was applied, how the data was stored and processed and how different constructs presented below were built from the raw data.

Results

Because of the many types of comparisons that need to be performed the presentation of results is organized following the structure presented in Table 2. The numbers in brackets following the titles of the subsections below correspond to the numbers in the boxes in Table 2 and help identify the type of comparison that is being performed. Hence, the results below are organized under three main headings corresponding to the dimensions (knowledge, associations and categories). Within each heading I look first at the dispersion within the type of organization, between firms and NGOs and to the possibility of overlap in the responses of individuals working for NGOs or firms. Finally, each type of comparison is carried out on the firm space and the NGO space. The tables and graphs supporting this analysis are contained in the Results Annex. This annex is organized and coded so that it is easy to identify the type of comparison on Table 2.

Knowledge

Differences within types of organizations (1, 2, 3 and 4 in Table 2). While it is not possible to test whether the variance of a given sample is big or small in absolute terms, there are several measures to assess the dispersion of the responses given by the members of a sample.

The first step is to look at the range and the shape of the frequency distribution of knowledge scores obtained by managers of each type of organization on the NGO and the firm spaces. As is readily apparent from Table 1 and Figure 1 in the Results Annex, the level of knowledge that both types of respondents have of the firm space and NGO space spans a considerable range of scores. While the knowledge that oil firm managers exhibit of their own space is notably positively skewed, the shape of the other distributions resembles normal curve.

A second way to assess the variation in knowledge of our interviewees is to observe the combined level of knowledge that they have over both spaces. That is, to count how many cards they knew of the total 94 (65+29) cards that were presented. The plot on the left in Figure 2 portrays the range [28, 93] and distribution of total knowledge. An alternative way to summarize the total knowledge of the respondents is to plot the knowledge that each respondent has of the firm and NGO spaces. The plot on the right in Figure 2 carries out such exercise and identifies firm respondents as 0 and NGO respondents as 1s. While quadrant 1 is populated by respondents from NGOs and quadrant 3 predominantly by respondents in firms, the overall distribution of respondents is well spread out along both dimensions.

In sum, we find that firm managers exhibit a notable degree of dispersion in the level of knowledge they appear to have of both the firm space and the NGO space. Similarly, there exists substantial variation in the knowledge that NGO managers have of both spaces.

Differences across types of organizations (5 and 6 in Table 2) The simplest way to test for the differences in knowledge between firms and NGOs at the aggregate level is by carrying out a T-test of the average number of organizations that each type of respondent knows (see Table 2 in the Results Annex). Firms' managers know more firms (25/29) than NGO managers know firms (15/29). Correspondingly, NGO managers know more NGOs (43/65) than firms' managers know NGOs (30/65). The t-test of group means reveals that these differences are significant at the 99% level in both cases. Therefore, the level of knowledge that firm managers, as a whole, have of both the NGO and firm space differs significantly from the level of knowledge that NGO managers as a whole have of these spaces.

Overlap between individual respondents (7 and 8 in Table 2). While, as a group, firm managers exhibit a different kind of knowledge than NGO managers, this is not the case at the individual level. Figures 3 and 4 in the Annex display the probability that, for a certain level of knowledge of the firm or NGO space, a respondent happens to be working for a firm or an NGO. For example, in the first graph, if we observe that a given respondent knows 50% of the cards of the NGO deck (0.5 on the X axis), there is a 50-50 probability that the respondent works for an NGO. While it is readily apparent that firm managers know the firm space better than NGO managers and vice-versa, it is impossible to tell, for intermediate degrees of knowledge of both spaces, whether a respondent belongs to a firm or an NGO.

Associations

Given the structure of the data it is possible to compare patterns of association across items –how many times two cards are put in the same pile– or across respondents –how similar the pattern of associations provided by two respondents are–. See the Comparing Patterns of Association in the Methodology Annex for an explanation of both alternatives. While the two approaches provide complementary perspectives, I only present the latter in this section due to space considerations.

As explained in the Methodology Annex, the first step consists of building a measure of proximity between each pair of respondents based on the similarity of the structure and content of their piles. These measures of proximity can be defined in multiple ways and may lead to notably different conclusions (Arabie and Boorman). In order to make sure that my results are not driven by the type of proximity measure, I calculate three different measures, referred below as M1, M2 and M3, that are increasingly restrictive in nature. Table 3 in the Results Annex displays some summary statistics of these three measures in both spaces. This tabulation serves to highlight two important points. First, that while the means of the distances between pairs of respondents decrease with increasingly restrictive definitions of similarity – $M1 > M2 > M3$ –, the results are consistent across spaces. Secondly, narrower definitions of similarity result in broader distributions.

Differences within types of organizations (9,10,11 and 12 in Table 2). In order to evaluate if these measures vary by type of respondents, Table 4 in the Results Annex presents the summary statistics of the three measures of proximity between each pair of respondents

discriminating whether both of them work for NGOs, firms or whether they work for different types of organizations.

As can be readily observed, the range of responses displayed by the pairs of interviewees is quite broad regardless of the measure employed to calculate the similarity of their associational profiles or the composition of the dyad. Figure 5 in the Annex portrays the distribution of distances between pairs of respondents using M3. As in the case of knowledge, the distribution of associational profiles within each type of managers presents a wide range of variation regardless of the space under consideration or the measure employed to evaluate similarities among pile structures.

Differences between types of managers (13 and 14 in Table 2). Let us start by considering the distances between each pair of managers in network terms. That is, the relative distance between one respondent and all of the others will determine her relative position in the network. I will assume that a link exists between any two respondents if the distance between the two is higher than the average distance among all respondents. In order to test whether there are significant differences between the associational pattern of firm managers and NGO managers, I calculate whether the density of ties within and between types of respondents differs from what would be expected if ties were distributed at random across all pairs of nodes. Given that the independence of observations assumption is violated –the observed values are not independent samplings from populations– it is necessary to estimate the standard deviation of the parameters being tested by means of bootstrapping techniques (Borgatti, Everett et al. 2002).

The test of within-between density of ties on the associations that respondents provide about the firm-space (Table 5 in the Results Annex) shows that there more links between members of the NGO community than would be expected by random assignment ($p=0.989$). Similarly, there appear to be more ties among firm managers than would be expected by chance. In this case, however, the level of significance is slightly smaller than accepted standards ($p=0.885$). Finally, the number of links between members of both groups is notably smaller than it would be in the case of random assignment ($p=1.0$)

Applying the same technique on the associations that both types of managers have of the NGO-space provides highly significant, but qualitatively different, results (Table 6 in the Results Annex). As in the previous case, members of the NGO community exhibit high levels of closeness ($p=1.0$). Also as before, there are significantly few links between the members of both communities ($p=1.0$). Nevertheless, in this case firm managers are less interconnected than they would be in the case of random assignment ($p=.997$).

In sum, the pattern of associations for the firm-space given by the respondents in the sample provides a picture with two dense cores, one composed of firm respondents, the other of NGO respondents. In contrast, their pattern of associations for the NGO space resembles more of a core-periphery structure where NGO managers are situated closely together but relatively disconnected from firm managers. At the same time, firm managers do not appear to be closer to each other nor to NGO managers. Figures 6 and 7 in the Results Annex provide a graphical representation of this associational structure.

Overlap between individual respondents (15 and 16 in Table 2). Similar to what was done with the knowledge dimension, the thought experiment here is whether it is possible to tell the type of respondent, firm or NGO manager, by the way she sorted the cards. While the associational profile of a respondent –the distance between the focal respondent to all other respondents– is unique and, therefore, not only unequivocally identifies its type but also its very identity, a more lenient test would be to find out whether some structural characteristics of its position in the network help identify the type of respondent.

In order to carry out such test, I have computed the Freeman degree centrality, Closeness, Betweenness and Coreness of each respondent in both the firm space and the NGO space. If the region they ‘inhabit’ is populated mainly by the same type of respondents, we should find that a logit model with these measures as independent variables, and type of respondent as the dependent variable should explain a large part of the variance of the model.

Tables 7 and 8 in the Results Annex show the results of these regressions. The degree of variance explained by both specifications is moderate and, therefore, supports the overlap hypothesis advanced above. Interestingly, while most of the independent variables in the firm space are highly significant, none of them is significantly different from zero in the NGO space.

Categories

The information about categories was obtained through the labels that respondents assigned to each of the piles they formed. Respondents were allowed to define as many labels as they felt necessary to properly characterize each pile, and no pre-determined list of labels was presented to the interviewees. While this method provided extremely rich information about the different ways managers structure the organizational field, it also rendered analysis and comparisons notably complicated. A first coding of the data provided 397 distinct terms for the description of the firm-space and 451 for the NGO space. A soft process of data reduction (Laukkanen 1994) was then carried out through grouping the *unambiguously* synonymous terms under the label that had been used the most. Emphasis needs to be placed on the fact that this process was carried out taking extreme care to preserve the spirit of classification made by the interviewee; a task that led to a review of most of the recordings of the interviews. In the end, the number of labels under consideration was brought down to 190 for the firm-space and 200 for the NGO-space.

During the pilesorting exercise respondents were encouraged to label the piles using terms commonly employed in their organizations. While this provided very rich material for other kinds of analysis, it is important to acknowledge that it might also portray a picture of greater variability than the one existing in reality.

Differences within types of organizations (17, 18, 19 and 20 in Table 2). The sheer amount and variety of terms used by respondents to define their piles alone is a testimony of the multiple structuring principles employed by managers to make sense of their organizational

fields. More concretely, (see Table 9 in the Results Annex) both NGO and firm managers employed quite a broad array of distinct terms to characterize their piles (Firm managers used 109 terms to describe the firm-space and 69 to describe the NGO-space. NGO managers employed 120 and 173 terms respectively). While the number of terms employed depends on the number of piles a respondent decided to make, even controlling for the number of piles, our sample of respondents presented a significant level of intra-group variation⁷. Indeed, the coefficients of variation reported in Table 9, while smaller, continue to show a significant degree of variation in all four cases. Figure 8 in the Results Annex provides a graphical representation of the dispersion of the total number of unique labels employed by each interviewee to describe the firm and NGO spaces.

A somewhat more refined way to assess the level of dispersion in the use of categories within each type of respondents, is to look at the number of times a given term was used to define a particular organization in the card decks. Table 10 in the Results Annex shows that very few terms were employed by multiple respondents to define one particular organization. The most extreme case of overlap was use of the term “international”, by 21 of the 34 NGO managers, to characterize no other organization than USAID. However, it is readily apparent that the norm was that only one or two respondents employed the same term to define any given organization in the card decks.

Differences between types of organizations (21 and 22 in Table 2). Do firm managers, as a group, employ a significantly different set of categories to make sense of the environment

⁷ - A manager who has classified the, say, NGO space in 2 piles requires at least two labels to characterize the field while a second manager who has divided the field in 10 piles will need, at least 5 times as many labels to characterize the same field.

than NGO managers? A first approach to answering this question can be made with the information provided in Table 9 that was already presented in the previous subsection. Running a T-test on the average number of labels employed by each type of respondent, it is clear that firm managers employ a significantly ($p=0.00$) larger amount of terms to describe the firm space than NGO managers. Conversely, NGO managers employ more terms to describe the NGO-space than firm managers ($p=0.00$). However, these differences disappear when the number of piles made by each respondent is taken into account.

While the above results indicate that each type of manager provides a more refined picture of her own field, they do not shed light on whether different types of managers use substantially different categories to structure the organizational field. In order to find out whether there are terms that are exclusively employed by one type of manager or another, I take the list of unique terms employed –190 for the firm-space and 200 for the NGO-space– and calculate what percentage of managers of each type have used it at least once. Figure 9 in the Results Annex portrays the proportion of managers that use a particular term to describe organizations in the NGO world. For example, the term ‘international’ is used by 15% of firm managers and about 70% of NGO managers. The overall picture is one of non-homogeneity in the use of terms. So much so that some of the terms are exclusively used by only one type of manager. Notice that the graph is sorted in descending order from most to least used terms and that it does not contain terms mentioned by less than 3 managers. Although less dramatic in the upper part of the chart (see Figure 10 in the Results Annex), the use of categories employed by both types of managers to describe the firm-space also displays considerable heterogeneity. Bear in mind that telling as these

graphs already are, the fact that they only include terms mentioned by 3 or more respondents understates the real differences that exist in the use of terms between the two groups. More concretely, if all the terms were plotted in the above charts, 1/2 of the terms used to describe the NGO-space and almost 2/3 of those employed to describe the firm space would show up only on one side of the graph.

Overlap between individual respondents (23 and 24 in Table 2). Given that a large proportion of the labels elicited through the pilesorting exercise are employed by a single respondent, looking at any random combination of labels employed by a respondent not only identifies what type of manager she is, but also her very identity. From this perspective, there is no overlap that one can speak of. However, if one takes those terms that have been mentioned by at least one NGO respondent and one firm respondent and normalize for relative sample size –there are roughly twice as many NGO respondents than firm respondents in the sample–, the picture is less clear. A random extraction of a label corresponding to the NGO-space would be unable to predict whether the respondent that employed that label works for an NGO or a firm. Similarly, the extraction of a label from the firm-space gives us an almost 50-50 chance of that respondent being a firm. Table 11 in the Results Annex shows the results of this test. However, this is not to say that all labels are equally used by all types of respondents. As shown in Figures 11 and 12 in the Results Annex, there is a notable dispersion in the use of labels by type of respondent. That is, while a random extraction of a label used to describe the, say, NGO, provides *on average*, little information about the type of respondent, if that label happens to be ‘reliable’ or

‘moderate’ (Figure 11) there is a very high probability that it has been used by a firm respondent.

Taken together, the results of the analyses above convey three main insights. First, that there is a significant variance in the mental models held among the members of each type of organization. Thus, the level of knowledge, pattern of associations and substantive categories used by NGO managers to describe their cognitive structure of both the NGO-space and the firm-space in Ecuador varies substantially from NGO manager to NGO manager. Similarly, the mental representations that oil firms’ managers have of their market and non-market landscapes offer a considerable range of variation. The second insight is that, *taken as a whole*, the perception that firms and NGOs have of their own and of each other’s landscape is significantly different. Finally, it is important to acknowledge that, while different, these worldviews overlap to some extent. As a consequence, it is not adequate to assume that, at the single organization level, being a firm or an NGO will determine fully the perception of how one’s environment is structured.

Discussion and Implications

These three findings carry significant implications for the field of non-market strategy and managerial cognition. These insights are summarized in the table below.

Table 3 - Implications of mental maps variances

	Variation WITHIN type of organization	Variation BETWEEN types of organizations	OVERLAP of individual mental maps
Cognition literature	Cognition of non-market environment can also be a source of organizational competitive advantage (Huff and Jenkins 2002; Hodgkinson and Johnson 1994; Wooldridge and Floyd, 1989)	Interorganizational fields attend to different logics (Huff 1982; Spender 1989; Phillips 1994)	But these logics are not completely orthogonal; managers cognition is formed through the multiple frames of reference (Hodgkinson 2005)
Non-market literature	Inadequacy of role-based stakeholder segmentation since they see themselves quite different (Wolfe and Putler 2002)	Dominant logic in a field requires to adopt a more emic perspective to the management of stakeholders (Prahalad and Bettis 1986)	Greater proximity may lead to lower transaction costs. Market and non-market logics are not independent from each other → integrated strategy (Baron 1995)

The basic tenet of the literature on managerial cognition is that due to the extreme complexity of the environment in which a firm operates, managers develop a knowledge structure (Walsh 1995) that helps them filter bits of irrelevant information while highlighting others deemed relevant to the objectives of the firm. As such, cognitive representations of the world may constitute extremely valuable firm capabilities that can help companies achieve a superior level of performance and increase their chances of survival (Huff and Jenkins 2002). Until relatively recently, market interactions between the focal firm, its customers, suppliers and competitors was deemed the sole source of value creation or destruction for the firm. As such, mental representations of a firm's competitive space were the most relevant for the study of firm performance. However, in more recent times a mounting body of research points to the fact that firm value can be created or destroyed not only through market transactions, but also as a result of the non-market behavior of the firm (Baron 1996). Since non-market behavior is also informed by firm

managers' mental maps of their non-market space, it follows that these representations could also constitute a core capability of firms. The findings in this study support and qualify the potential for cognitive representations of the non-market environment to be a source of competitive advantage. In particular, establishing that there is substantial variance in the mental maps *within-type* of organization suggests that some firm (NGO) managers will likely interpret the stimuli from their environment in a different way than managers in other firms (NGOs) and, in turn, will respond to a given environment in different ways. Differences in behavior, then, may be associated with differences in payoffs. It is important to emphasize that this study only provides evidence of differences in mental map representations, not in actual behavior. It therefore provides evidence of a necessary, but not sufficient, condition for the impact that mental representations of a firm's non-market environment may have on the firm's performance and competitive standing.

On the other hand, the fact that firm managers have, as a group, significantly different mental representations of the world than NGO managers, points at the existence of different dominant logics within each type of organization. This finding stands in line with what organizational cognition scholars have called "industry recipes" (Spender 1989) or "industry mindsets" (Phillips, 1994) and also with what institutional theorists have called "industry systems" (Hirsh 1972), societal sectors (Scott and Meyer 1983) or organizational fields (DiMaggio and Powell 1984). All of this research suggests the existence of shared cultural knowledge by clusters of organizations that inform perception of the organizational environment, intra-group structure and behavior (Phillips 1994). The present study allows for a (crude) measurement of the relative distance between the "central tendencies"

(Hofstede, 1991, p253) of two sets of organizations that have been interacting for over 30 years in Ecuador. Monitoring the evolution of these central tendencies would not only provide an indicator of social risk at the industry level, but would also help identify the criteria on which corporate non-market policies should rest in order to make them meaningful for a broad spectrum of local actors.

However, the dominant logics of NGOs and firms are not completely orthogonal since, as has been shown, there is a noticeable level of *overlap* between the perspectives that firms and NGO managers have of their own and each others' field structure. This gives support to the claim that managers' cognitive structures are formed through exposure to numerous frames of reference (Huff 1982; Hodgkinson and Johnson 1994; Hodgkinson 2005).

The findings of this study have strong implications for the theory and practice of non-market environments management. In the first place, the existence of considerable variance in the worldviews of NGOs suggests that the role-based classification of stakeholders prevalent in the field rests on very unsteady foundations. As Wolfe and Putler (2002) argue, virtually all studies in the stakeholder theory tradition classify the stakeholders of a firm according to their role (ie. shareholders, employees, communities, NGOs...). Defining a strategy based on such a criterion carries the underlying assumption that all actors in each category share the same stakes, have the same interests, a similar degree of power over the firm, and are likely to employ similar strategies to achieve their goals. As is evident from the Ecuadorian situation, this is not necessarily the case. While Wolfe and Putler argue that heterogeneity of stakes within role-based stakeholder group may arise from the particular

characteristics and goals of each particular stakeholder, the results of this study suggest an even stronger motivation for same-type of stakeholders to behave in different ways: the competition for resources among the members of a given stakeholder role. Indeed, a good number of NGO respondents classified the NGO field either according to sources of funding and users of funds or, alternatively, identified the NGOs they saw competing with them for funds. Shockingly, none of the firms' managers mentioned the origin of the funds of NGOs as a classification criterion. In sum, the variety of worldviews that NGOs, a typical stakeholder role, have of both their own and the oil firms' organizational space, strongly suggests that firm managers should go beyond the established practice of addressing different types of stakeholders as if their needs and goals were homogeneous.

The second finding of this study, that firms and NGOs collectively hold different perceptions of their own and each other's space, points to the risk of adopting a stance, vis-à-vis each other, based on the stereotypes than on real behaviors. I found this to be the case for both firms and NGOs. As mentioned above, firms' managers complained bitterly about the fact that the oil industry as a whole was being unjustly subject to the "Texaco imaginary" while, at the same time, they passed blanket statements about the greediness of indigenous communities or the obstructionist agenda of the NGO community. Similarly, NGO managers argued that, 'all firms are the same; all they want is to make money regardless of the damage, social or environmental, they cause'. Because mental maps work as cognitive shortcuts and are the result of cognitive and social interaction, they tend to be transparent to the individual using them. As a result, they bear the risk of highlighting and blurring particular pieces of information without the subject being aware of what is being

emphasized or made irrelevant (Allison 1971). Since the construction of one's cognitive maps is as much the result of individual cognitive behavior as of social interaction, particularly with peers, it is necessary to make a conscious effort at making explicit the assumptions of the models they hold. Similarly, if meaningful interaction is to happen between firms and NGOs, it is necessary to have a better understanding of the mental structures of the main categories of stakeholders.

Finally, the fact that there is a certain degree of overlap between the mental maps of firms and NGOs leads us to think about three issues. First, it suggests that the relative distance between the mental maps held by a firm manager and an NGO manager may have strong implications for the costs associated with trying to establish meaningful collaborations between different types of organizations. Indeed, previous research on the relations between firms, NGOs and communities in Ecuador had already pointed to the difficulty encountered by these actors in engaging in meaningful interaction due to the 'lack of a common language' (Natalie 2000). What is more, some oil companies have been hiring former NGO workers on the basis that they are more used to talking the language of other NGOs or communities⁸. In the same way, NGO managers with corporate backgrounds appeared more comfortable about interacting with firms.

A second intriguing implication of the partial overlap between firms and NGOs' mental maps, is that both types of organizations may have very good reasons to perpetuate their position vis-à-vis other organizations. This was particularly salient in the case of NGOs.

⁸ This practice has generated all sorts of reactions and interpretations from the NGO community, but the fact remains that firms perceive that in order to effectively manage their non-market context it is necessary to count on boundary spanners.

Given the competition for funds that most of them face and the limited tangibility and measurability of much of the work they do, it is necessary for NGOs to strongly differentiate themselves from the rest of the organizations that may have a claim on a given donor. At the same time, however, the limited set of capabilities of many of these organizations leads them to collaborate with firms or other NGOs in order to achieve their stated missions. As a result of these two opposed forces –simultaneous need for differentiation and collaboration– NGOs develop their particular identities and strategies based on the perceived payoffs, measured in terms of mission achievement, that one line of action or another will beget.

One final implication of the partial overlap between the mental maps of NGOs and firms is that the actions of both types of organizations are not completely independent of each other. From the perspective of firms this fact would support the appropriateness of effectively linking its market and non-market strategies in what Baron (1995) calls an “integrated strategy”.

Limitations and Conclusions

Limitations:

This study has a number of limitations that invite to qualify the value of its findings. While some of these limitations are linked to the scope of the study and obvious limits on respondents availability, others are linked to research design trade offs.

Among the first type of limitations, the most obvious one is that the empirical setting of the study is one single industry in one single country. This brings up the obvious issue of generalizability. While the only clear alternative would be to replicate the study in a variety of industries and institutional settings, it is worth highlighting three characteristics of the context chosen for this study. First, Ecuador is an archetypical case of a developing country endowed with significant amounts of natural resources. Second, the oil sector is probably the largest single and most global industry in the world. And third, that given the potentially large collateral damages generated by the oil industry, it is one of the most scrutinized by civil society organizations and governments. As a result of these three conditions it is fair to argue that the results obtained in the present study, while not bulletproof, probably apply to a wide variety of institutional and industry contexts.

A second type of limitation that is important to acknowledge is what Hogdkinson (2005) points to as one of the common limitations of cognition studies: the one-respondent-multiple-organization problem. While there are numerous studies pointing at the convergence of mental maps within the members of a given organization over time through dialectical and self-selection processes, it is nonetheless fair to acknowledge that some recent studies point to the pervasiveness of different mental models within an organization. As is obvious from the treatment of the data and arguments, this study subscribes to the former perspective. That is, it assumes that each respondent provides a representative description of the mental map employed to interpret contextual information in her organization. In order to limit the risk of misrepresentation, two criteria for the selection of

interviewees were established. Either the interviewee was the top responsible for institutional relationships in the organization, or she had been with the organization for a minimum of four years. In the great majority of cases both conditions were satisfied.

Other kinds of limitations derive from the specific objectives of the study and the methodology employed. Among others, one could mention (1) the static nature of the study, (2) the lack of explicitness about the causal processes that respondents consider to be at work or (3) the lack of attention to the antecedents and implications of a given knowledge structure.

Conclusions:

This paper takes issue with the role that managerial and organizational cognition plays in non-market environments. To the extent that firm value is created or destroyed through mechanisms and actors other than markets and interaction with competitors, suppliers and customers, it is important that the non-market domain and the organizations composing it are also acknowledged as part of the cognitive structures that inform managerial decision making and organizational behavior. Acknowledgment of the multiple dimensions that compose managerial cognition will, in turn, define a broad research agenda that should include questions such as: how do knowledge structures of non-market environments come into being? How do they evolve? How do they inform non-market action? How do they interact with a manager's image of his company's competitive environment? Or, even, are managers able to mingle market and non-market logics into an integrated strategic management mindset?

A first step in the development of such an agenda consists of what Walsh (1995) catalogs as attempts to mapping or representing the knowledge structures of managers. This study is a first effort in such direction. In particular, it maps the mental maps that oil firms and NGO managers have of their own and each other's sector. The analysis of this innovative 2-by-2 design supports previous findings in the field of managerial cognition –variance among mental maps held by different firms– and provides new suggestive evidence (1) that the perception of non-market environments also exhibits significant variance both across firms and across NGOs. That (2), taken as a whole, the mental representations of firms and NGOs are significantly different. And (3) that despite these differences, there is some degree of overlap between the mental maps of individual firms and NGOs.

Two main implications derive from this analysis. On the one hand, showing that there is significant dispersion among the cognitive structures of market and non-market actors suggests that cognition of one's non-market environments may be a source of competitive advantages for firms (Huff and Jenkins 2002). While this study provides evidence of necessary cause of competitive advantage it cannot claim that differences in cognition is sufficient cause for exceptional social and financial performance. On the other hand, this paper supports and extends Wolfe and Putler's (2002) criticism of the often recommended role-based stakeholder segmentation as a proper starting point for effective non-market strategy formulation.

Finally, at a methodological level, this paper proposes a technique for the elicitation of cognitive representations based on the principle that one's perspective of the world is the result of introspective reflection as much as the result of conscious and unconscious efforts to position oneself vis-à-vis other relevant actors in one's context (Bourdieu and Wacquant, 1992). While this technique is not free of criticism (Hodgkinson and Johnson 1994), it is certainly much less amenable to the involuntary shaping of respondents answers by the researcher than other more prevalent methodologies and provides the great advantage of being easy to transpose across types of stakeholders.

Appendix 1 - Card Decks used in pilesorting

NGO CARD DECK		FIRMS CARD DECK	
Short Name	Long Name	Short Name	Long Name
AECI	Agencia Española de Cooperación Internacional	AEC Ecuador	AEC Ecuador
BTC	Belgische Technische Coöperatie / CTB - Coopération Technique Belge (Ecuador)	Agip Oil	Agip Oil
COSUDE	Agencia Suiza para el Desarrollo y la Cooperación	Bellwether	Bellwether
DED	Servicio Alemán de Cooperación Social-Técnica	Burlington	Burlington
FECD	Fondo Ecuatoriano Canadiense de Desarrollo (Ecuador)	Canada Grande	Canada Grande
GTZ	Cooperación Técnica Alemana (Ecuador) [M]	CGC	CGC
JICA	Agencia de Cooperación Internacional del Japon (Ecuador)	City Oriente	City Oriente
Swissaid	Fundación Suiza para la Cooperación y Desarrollo	CNPC	CNPC
USAID	Agencia Internacional para el Desarrollo [M]	Ecuador TLC	Ecuador TLC
CDES	Centro de Derechos Economicos y Sociales (Ecuador)	EDC-Ecuador Ltd	EDC-Ecuador Ltd
PUCE- Laboratorio Derechos Humanos	Pontificia Universidad Católica del Ecuador	Encana Ecuador	Encana Ecuador
AbyaYala	AbyaYala (Ecuador)	Pacifpetrol	Pacifpetrol
Acción Ecológica	Acción Ecológica (Colombia)	OXY	Occidental Petroleum Ecuador
Acción Social	Acción Social (Ecuador)	OCP	Oleoducto de crudos Pesados
AI	Amnistía Internacional (Ecuador)	Perenco	Perenco
Aldeas Infantiles SOS	Aldeas Infantiles SOS (Ecuador)	Petrobell	Petrobell
Ayuda en Acción	Ayuda en Acción (Ecuador) [M]	Petrobras	Petrobras
BirdLife International	BirdLife International (Ecuador)	Petroecuador	Petroecuador
CARE Internacional	CARE Internacional (Ecuador) [M]	Petrosud	Petroleos Sudamericanos
Caritas / SENAPS	Secretariado Nacional de Pastoral Social (Ecuador) [M]	Repsol-YPF	Repsol-YPF
CCF	Christian Children's Fund (Ecuador) [M]	SIPEC	SIPEC
CEDHU	Comisión Ecueménica de Derechos Humanos (Ecuador)	Sundown-Clipper	Sundown-Clipper
CEPAJ	Coordinadora Ecueménica de Pastoral Juvenil (Ecuador)	Tecpecuador	Tecpecuador
Children International	Children International (Ecuador)	Tripetrol	Tripetrol
CLD	Corporación Latinoamericana para el Desarrollo / Transparencia Ecuador (Ecuador)	Techint	Techint
CRS	Catholic Relief Services [M]	Elf	Elf Aquitaine
Cruz Roja Ecuatoriana	Cruz Roja Ecuatoriana (Ecuador)	CONOCO	Conoco Phillips
DNI	Defensa de los Niños Internacional	Maxus	Maxus
FACES	Fundación de Apoyo Comunitario y Social del Ecuador [M]	Kerr-McGee	Kerr-McGee
FAN	Fondo Ambiental Nacional (Ecuador)		
FEPP	Fondo Ecuatoriano Populorum Progressio (Ecuador) [M]		
Fundación Esquel	Fundación Esquel (Ecuador) [M]		
Fundación Sinchi Sacha	Fundación Sinchi Sacha (Ecuador)		
FUNDECOL	Fundación de Defensa Ecológica (Ecuador)		
FURARE	Fundación Rainforest Rescue (Ecuador)		
HORIZONT3000	Organización Austríaca de Cooperación para el Desarrollo		
IBIS	IBIS (Ecuador)		
ILDIS	Instituto Latinoamericano de Investigaciones Sociales / Fundación Friedrich Ebert (Ecuador)		
Intermón Oxfam	Intermón Oxfam (Ecuador) [M]		
MMA	Medicus Mundi Andalucía (Ecuador)		
MsF	Médicos sin Fronteras-España (Ecuador)		
OilWatch	OilWatch (Ecuador)		
Oxfam GB	Oxfam GB (Ecuador) [M]		
Redes	Fundación Recursos para el Desarrollo Sustentable (Ecuador)		
SERPAJ	Servicio Paz y Justicia (Ecuador)		
SI	Solidaridad Internacional (Ecuador)		
SNV	Servicio Holandés de Cooperación al Desarrollo [M]		
UICN	Unión Mundial para la Naturaleza		
WCS	Wildlife Conservation Society (Ecuador)		
Accion por la vida Mindo	Accion por la vida Mindo		
CECIA	Aves y Conservacion		
CI	Conservation International		
Ecociencia	Ecociencia		
FDA	Frente por la Defensa de la Amazonia		
Fundacion Futuro Latinoamericano	Fundacion Futuro Latinoamericano		
Fundacion Jatun Sacha	Fundacion Jatun Sacha		
Fundacion Maquipucuna	Fundacion Maquipucuna		
Fundacion Natura	Fundacion Natura		
Fundacion Pachamama	Fundacion Pachamama		
INREDH	INREDH		
PACT	PACT (Ecuador)		
Puntos Verdes	Puntos Verdes (Mindo)		
RAN	Rainforest Action Network		
TNC	The Nature Conservancy		
WWF	WWF (Ecuador)		

Methodology Appendix

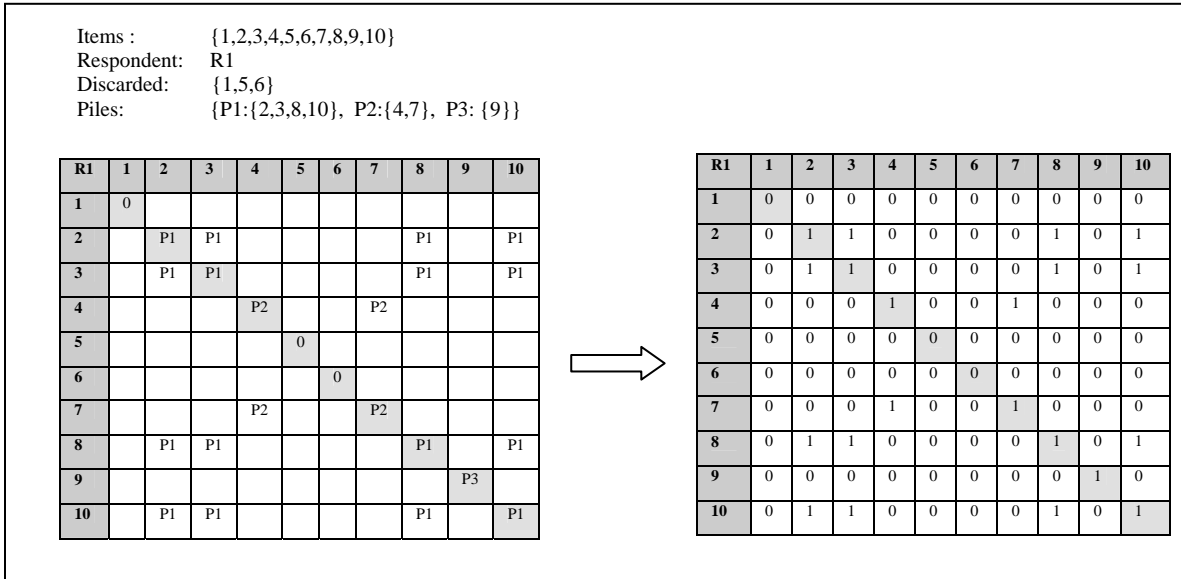
Administration of the pile-sorting method

It is important to note a number of particularities of this method and the way it was applied. In the first place, respondents were emphatically reassured, before starting the pilesorting, that this exercise was not a test and that there were no right and wrong answers; that all I was interested in was to know how they thought about the world of NGOs and oil firms in Ecuador. The reason for this introduction was that in two of the pilot tests interviewees were not able to provide a coherent explanation of the criterion they used to make the piles. On further probing, they admitted to “just have heard the name somewhere” but that they did not want for me to have the impression they did not know about NGOs (oil firms) in their country. A second methodological consideration is that directions as to how much respondents had to know in order to accept or discard a specific organization was left deliberately vague. Similarly, I avoided giving any clues about ‘acceptable’ criteria for the classification of accepted cards in different piles. The reason for this vagueness was that one of the goals of the exercise was to elicit the range of categories that respondents employ to make sense of their environment. In addition, I wanted to avoid, as much as possible, influencing the creation of the mental maps with my own perspective; a risk widely documented in the cognition field. A third decision regarding the administration of the pilesorting exercise was to carry out a ‘single’, as opposed to a ‘multiple’ pilesort. Since the associations and categories a respondent provides are probably just one of many classification schemes they may feel equally comfortable with, the researcher might allow the respondent to repeat the exercise as many times as the respondent can think of sensible ways to organize the items before her. In this case it was assumed that the first classification scheme would be the most salient one for the interviewee. In fact, only one of the interviewees raised the point that there might be other ways to organize the, in this case, NGO card deck.

Storing the data

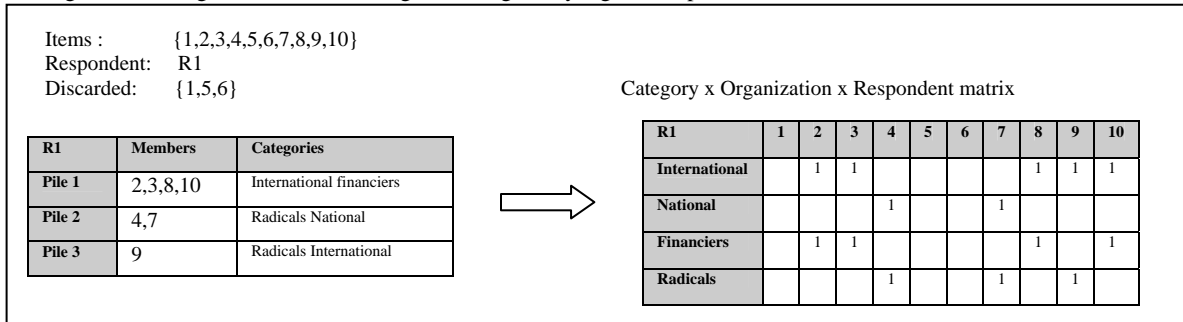
Knowledge and Associations data were stored in a three dimensional, organization-by-organization-by-respondent (A_{ijk}), matrix. For any given respondent (k) and pair of organizations (i,j) in a deck, I assigned a 1 if the two items were in the same pile –were seen as close- or a 0 otherwise. The elements in the diagonal received a 1 if they had been considered ‘known’ in the first stage, and a 0 if they had been discarded. By construction, therefore, all rows and columns with a 0 in their diagonal have to contain only zeros. Single item piles will have a 1 in the diagonal but zeros elsewhere in the corresponding row and column. (see figure 1)

Figure 1. Coding scheme for the associations of a given respondent R1



Information about the *categories* elicited by respondents was coded as another three dimensional matrix. This one was a category-by-item-by-respondent matrix (C_{ijk}). Categories were taken from the labels provided by respondents to describe each pile. Since respondents could provide multiple labels for each pile, a given organization was allowed to score on more than one category. Then, for all the items in a given group I assigned a 1 to those dimensions that were used to describe that group and a 0 otherwise. (see figure 2)

Figure 2. Coding scheme for the categories assigned by a given respondent R1



From matrices to concepts

Before dwelling into the analysis of the similarities and differences of the mental maps yielded by the pilesorting exercise, it is necessary to clarify a number of concepts and analytical procedures that will be used in the remaining of the study. In particular, it is necessary to explain what *knowledge* of the environment means in this context and how it is operationalized, and how *aggregations* and *comparisons* of individual mental maps are calculated.

Knowledge.

An organization is *known* by the respondent if in the first phase of the pile-sorting she did not discard that particular organization⁹. As mentioned above, known organizations are coded with a 1 in the diagonal of the associations matrix ($A_{ijk} = 1$ for $i=j$ if the k th respondent knows the organization). Aggregate measures of knowledge are then computed by adding the elements of the matrix across respondents or across elements. The overall knowledge of a k respondent would be given by:

$$KNGO_k = \sum_{i=j} A_{ijk} \quad k=a$$

or, normalizing by the total number of possible cards,

$$KNGO_k = \sum_{i=j} A_{ijk} / n \quad k=a \quad n = \text{number of respondents}$$

Similarly, we can calculate how well known a given organization is by aggregating across respondents:

$$KNGO_i = \sum_{k=a} A_{ijk} / r \quad k=\{1, \dots, 50\}$$

Conceptually, it is important to note that the pile-sorting exercise captures the *breadth* of knowledge that a given respondent *thinks* she has. While it is not possible to establish the degree of knowledge of a given actor with respect to a fixed benchmark, it is adequate to regard this measure as an indicator of the spectrum of organizations that she may take into consideration when appraising its environment and deciding about possible courses of action.

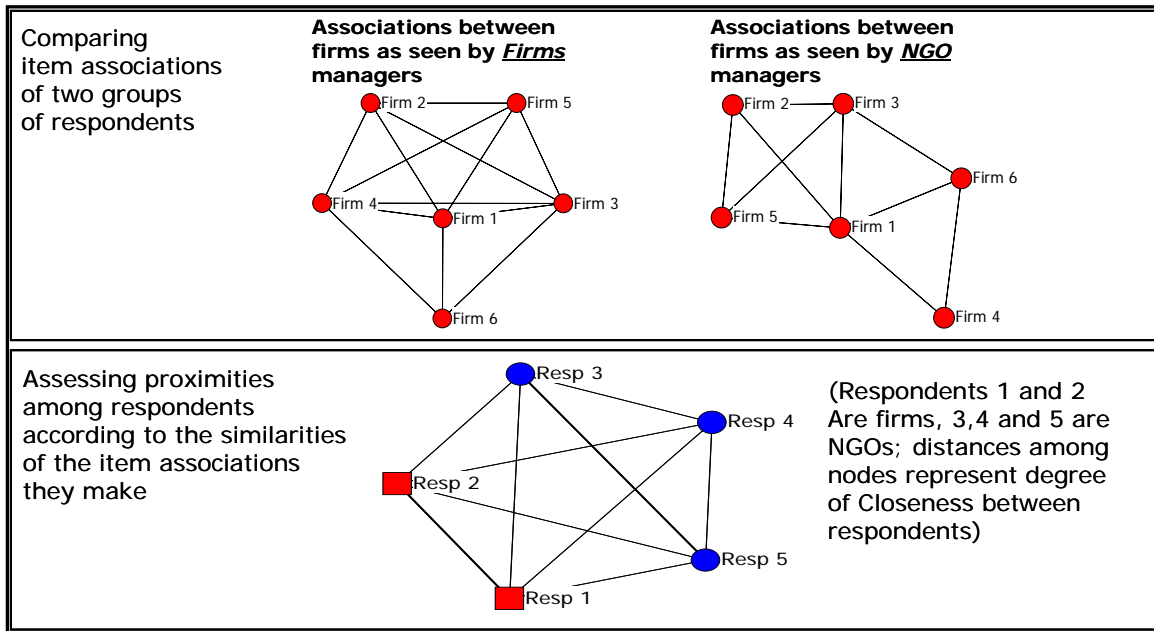
Associations

Comparing associational patterns. One option is to compare how closely each pair of items are positioned by two respondents. For example, it is possible to build a ‘corporate mental map’ and a ‘NGO mental map’ by aggregating the individual maps of firms’ and NGO managers and compare the pattern of associations (links) between the two maps.

Alternatively, it is possible to develop an overall measure of proximity between each pair of respondents’ associational profile and then examine the relative closeness between different sets of respondent. This approach helps determine, for example, if the overall perception that a given firm manager has of an organizational field resembles more the perspective of other firm managers or if, by contrast, she sees the world structured in a similar way to NGO managers. The scheme below illustrates these two alternatives.

⁹ Notice that we are not measuring the actual familiarity that a given respondent has about a given organization. Rather, what this measure captures is whether she *thinks* she is familiar with that organization. The threshold of what knowing or not knowing certainly varies depending on the respondent. However, what we are interested in is the perception of knowledge, the perception of closeness and the categories along which a given respondent classifies a given set of actors that are relevant to her own organization.

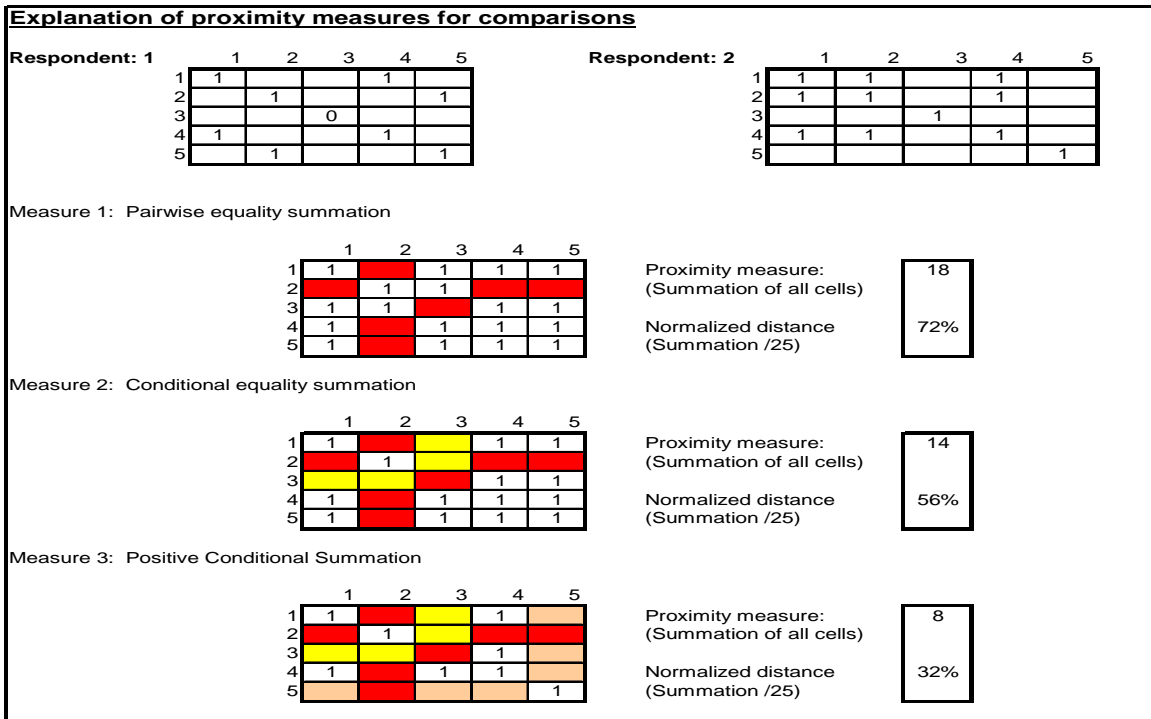
Figure 3 – Example of the two alternatives to compare associations; by items and by respondent.



While both types of analyses provide complementary perspectives of the associational patterns that managers have about the NGO and firm spaces, only the second one is developed below due to space considerations.

Measuring distances. Comparing two respondents' worldviews consists in evaluating whether they tend to associate the same pairs of organizations. That is, to assess how frequently they put two cards in the same or in separate piles. In matrix terms, we need to determine how similar the pattern of 0's and 1's of two matrices is.

There is a broad range of measures that one can use to contrast the similarity between two matrices (see Arabie and Boorman). As advanced by Coxon (1979) and Morgan (1987) some measures employed to compare matrices are more robust than others to some treatments but not to all. When using a pile-sorting technique it is important to be cognizant of what has been denominated the "lumper-splitter" problem and how it may be partially controlled by using particular comparison measures. Appendix 1 provides a more detailed explanation of the nature of this problem and of how it is addressed in the context of this study. In order to compare the degree of similarity between the mental maps three main measures will be employed: (1) pairwise equality summation –total number of cells that have the same value, zero or one, in the matrices of the respondents we compare-, (2) conditional equality summation –total number of cells that have the same value, conditional on both respondents knowing the organizations under consideration-, and (3) positive conditional summation –total number of cells that have a 1 in both matrices-. Notice that the measures of proximity are increasingly restrictive. See the box below for an example of the three measures.



Aggregations

Aggregating mental maps of some or all of the respondents in the study can be easily done through a linear combination of the corresponding matrices. Nevertheless, its meaning and the use we make of it requires careful consideration.

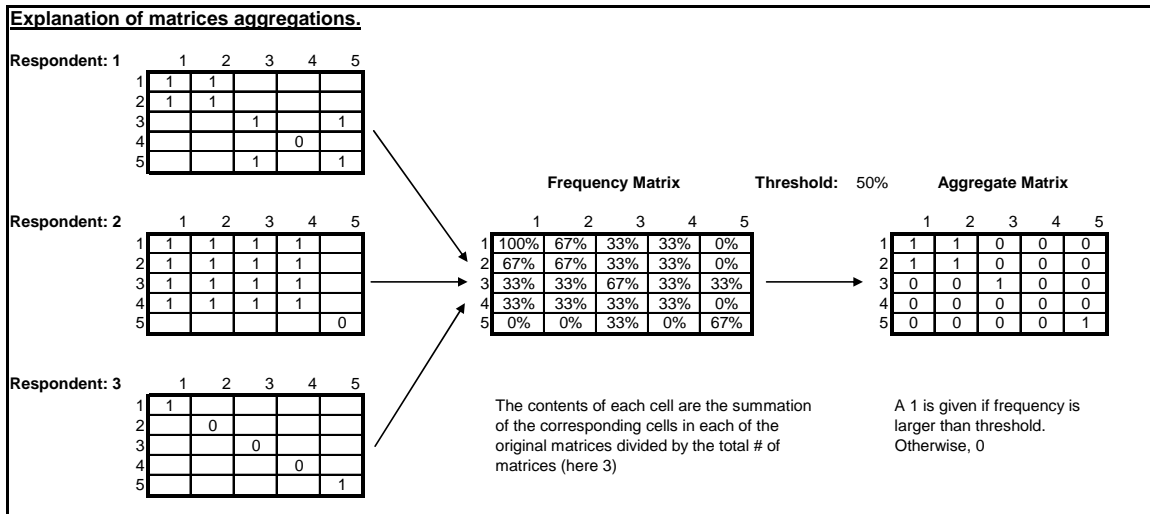
It is readily evident that because a number of respondents perceive two organizations as being close, that does not necessarily imply that they *are actually* close. One way to find out whether two organizations are effectively close is suggested by Krackhardt ()¹⁰. In our case this solution is not possible by construction –in the case of firms¹¹- and by the lack of a complete sample –in the case of NGOs.

The way aggregations are constructed in this study is as follows (see the box below for an example). First, a sub-sample of respondents is selected –for example, respondents working in oil firms. Let us remember that these square matrices represent whether two given organizations appear in the same pile. Then, the relative frequency of association between each pair of organizations is calculated. Finally, an association threshold is determined. A

¹⁰ In his study on friendship and advice networks in a small technology firm he proposes that a link between two persons exists in reality if both of them argue that the relationship actually exists. That is, two people are only considered to be friends if both of them consider each other a friend, independently of what everyone else thinks their degree of friendship is. The pairwise evaluation of all respondents in this way yields the “real” network.

¹¹ Because the card deck includes a number of companies no longer operating in Ecuador

relationship between each pair of items is deemed to exist if the relative frequency of association is greater than the established threshold.



While aggregating mental maps is common practice in the field of managerial and organizational cognition (), it is important to make explicit the meaning, in the context of this study, of combining the worldviews of multiple respondents.

The theoretical stance of this paper is that there are as many “real worlds” as there are actors. However, an individual’s world-view is not the result of a purely cognitive exercise; it is also a social process (). Therefore, aggregating individual mental maps provides a picture of the degree of consensus that a given group of respondents have regarding a common environment. More concretely, the process by which the aggregate map is constructed provides a measure of the likelihood, determined by the threshold, that a given group of people *perceive* that a relationship actually exists. In addition, since the argument in this paper is that *perceptions* of the world, not necessarily actual relations, are important determinants of organizational behavior, it is reasonable to assume that if a considerable proportion of actors think that a given relationship exists, they will act as if it actually does.

Results Appendix

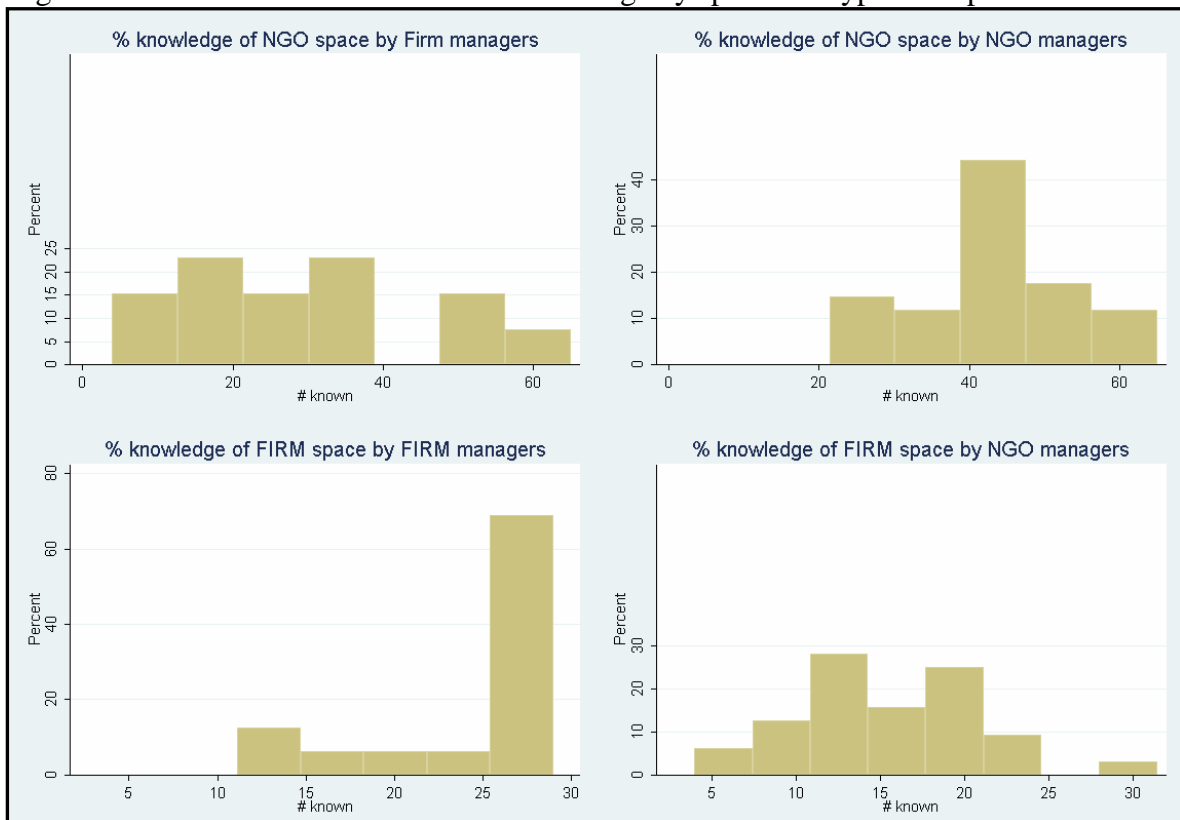
KNOWLEDGE- Comparisons WITHIN types of organizations

Table 1- Summary statistics of knowledge levels in firm and NGO space

FIRM SPACE											
	mean	N	max	min	range	sd	skew	iqr	p25	p50	p75
Firm-managers	30.31	13	65	9	56	16.38	.71	12	20	30	32
NGO-managers	43.50	34	65	23	42	9.73	.063	12	38	43	50
Total	39.85	47	65	9	56	13.17	-.28	20	30	42	50

NGO SPACE											
	mean	N	max	min	range	sd	skew	iqr	p25	p50	p75
Firm-managers	24.63	16	29	13	16	5.90	-1.18	7.0	22	27.5	29
NGO-managers	15.44	32	28	4	24	5.61	-.014	6.5	12	15	18.5
Total	18.50	48	29	4	25	7.14	-.013	12	13	18	25

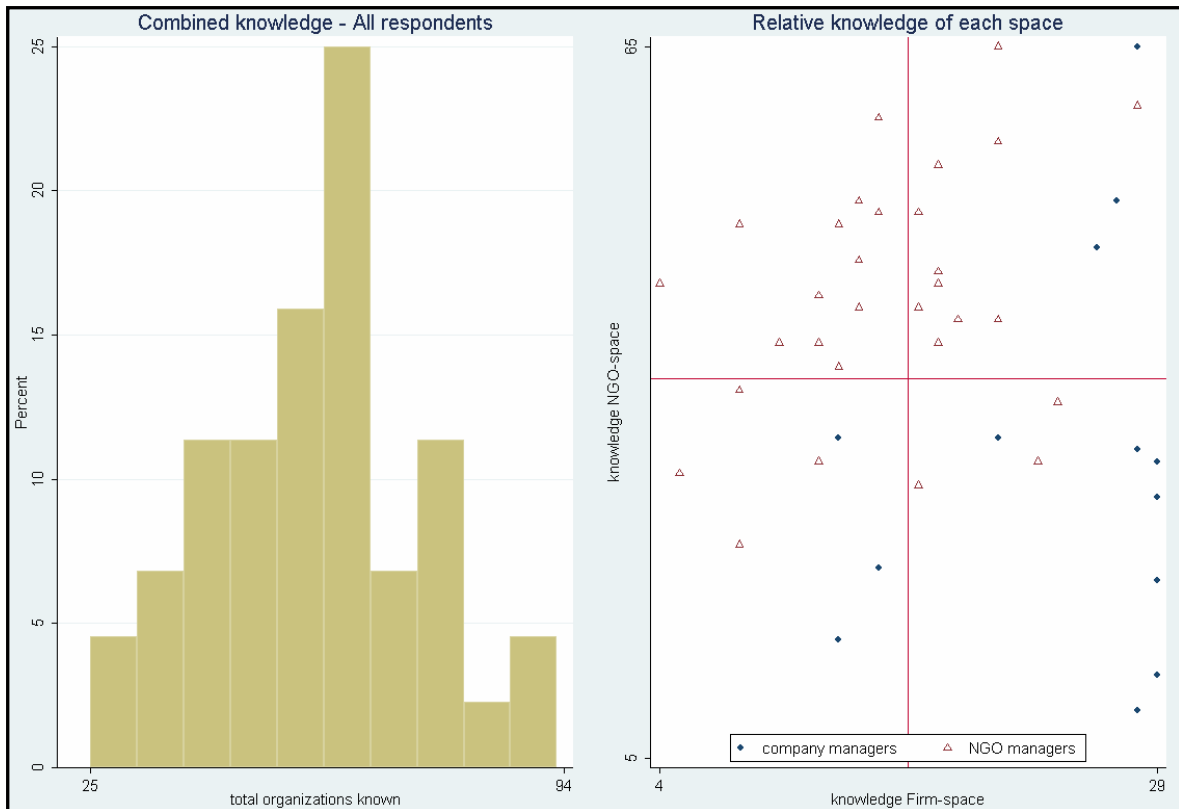
Figure 1 – Distributions of the level of knowledge by space and type of respondent



KNOWLEDGE- Comparisons WITHIN types of organizations

Figure 2 – Left - Distribution of total # of cards known

Right – Plot of knowledge of the firm and NGO space by respondent



KNOWLEDGE- Comparisons BETWEEN types of organizations

Table 2- T-test of aggregate level of knowledge of firm vs. NGO managers in both spaces

	Firm-space	NGO-space
Firm-respondents	Mean : 24.6 SD : 5.9 # Obs: 16	Mean : 30.3 SD : 16.4 # Obs: 13
NGO-respondents	Mean : 15.4 SD : 5.6 # Obs: 32	Mean : 43.5 SD : 9.7 # Obs: 34
	P(Mff=Mnf): 0.00	P(Mfn=Mnn): 0.00

KNOWLEDGE- OVERLAP in individual responses of NGO and Firm managers

Figure 3 – Distribution of degree of knowledge of NGO space by type of respondent

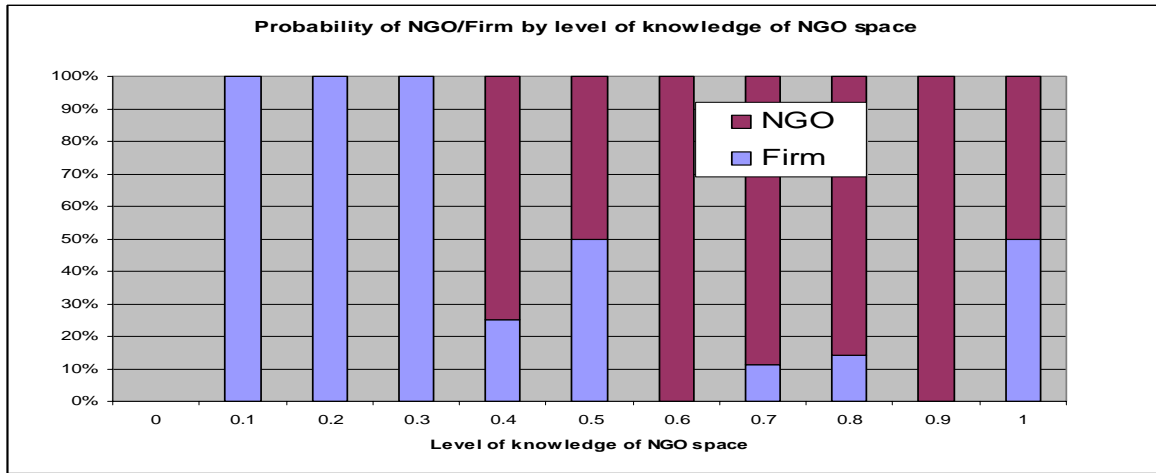
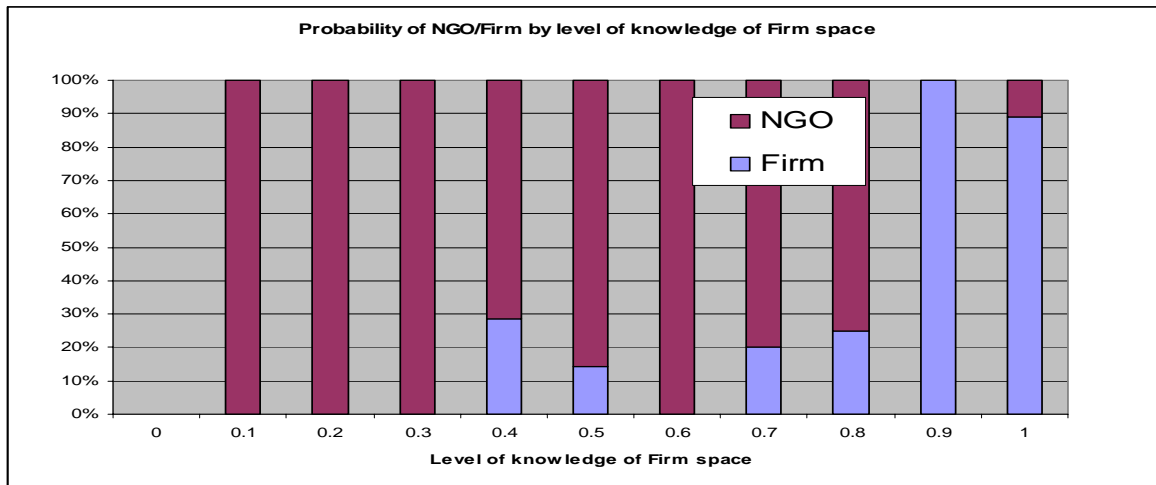


Figure 4 – Distribution of degree of knowledge of Firm space by type of respondent



ASSOCIATIONS- Comparisons WITHIN types of organizations

Table 3- Summary statistics of associational distance between respondent dyads

	M 1	M 2	M 3
NGO-space	Mean: 0.85 SD: 0.07 Range: 0.34 N (pairs): 2209	Mean: 0.78 SD: 0.10 Range: 0.65 N (pairs): 2209	Mean: 0.29 SD: 0.19 Range: 0.99 N (pairs): 2209
Firm-space	Mean: 0.80 SD: 0.11 Range: 0.53 N (pairs): 2304	Mean: 0.70 SD: 0.13 Range: 0.82 N (pairs): 2304	Mean: 0.38 SD: 0.23 Range: 0.99 N (pairs): 2304

Table 4- Summary statistics of associational distance between respondent dyads

		NGO Space			Firm Space		
	Measure	M1	M2	M3	M1	M2	M3
NGO-NGO	Mean	.86	.81	.35	.84	.67	.41
	SD	.06	.08	.19	.11	.15	.26
	Range	.34	.44	.97	.47	.82	.99
	N	1156	1156	1156	1024	1024	1024
Firm-NGO	Mean	.84	.75	.221	.77	.72	.33
	SD	.07	.10	.14	.09	.11	.20
	Range	.31	.45	.88	.48	.62	.99
	N	884	884	884	1024	1024	1024
Firm-Firm	Mean	.86	.73	.26	.77	.75	.43
	SD	.08	.14	.26	.08	.09	.21
	Range	.33	.65	.99	.42	.43	.92
	N	169	169	169	256	256	256
Total	Mean	.85	.78	.29	.79	.70	.38
	SD	.07	.10	.19	.11	.13	.23
	Range	.34	.65	.99	.53	.82	.99
	N	2209	2209	2209	2304	2304	2304

ASSOCIATIONS- Comparisons BETWEEN types of organizations

Figure 5- Distribution of distances (M3) between same-type respondents and by organizational space

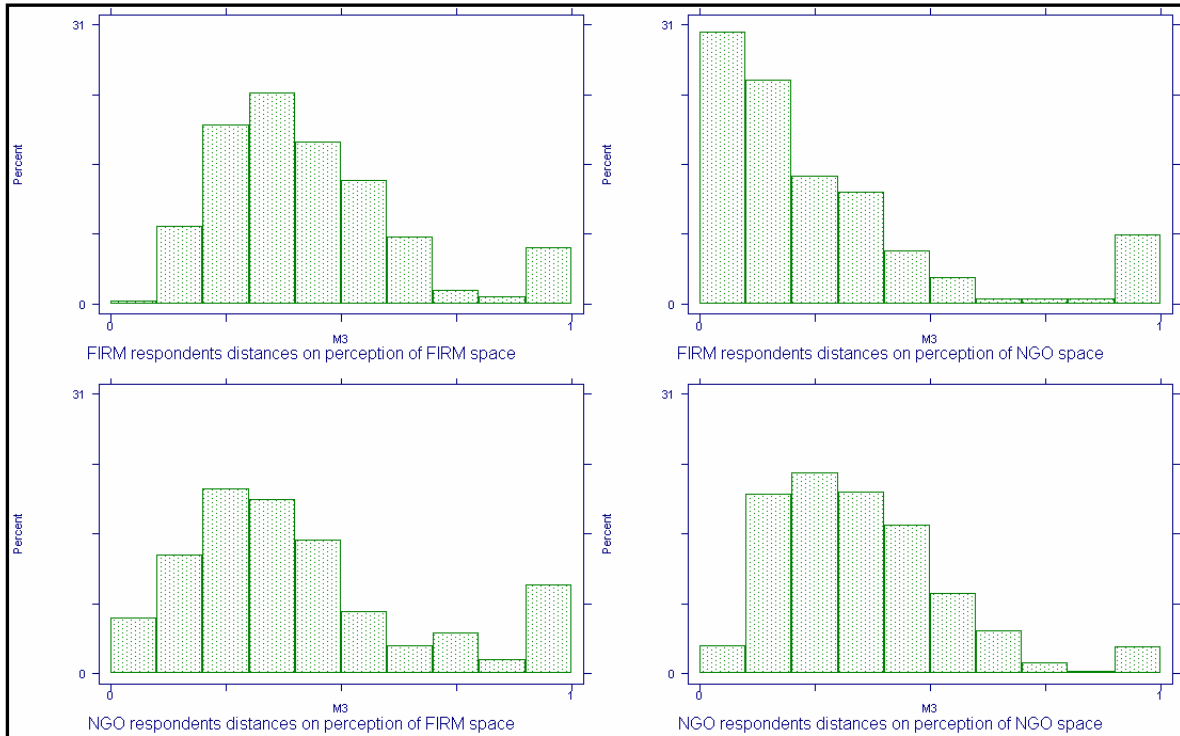


Table 5 – Density of links between and within groups of respondents. Firm space.

Number of iterations = 10000					
	Expected	Observed	Diff.	P>= Diff	P>= Diff
Firm-Firm	45.745	58.000	12.255	0.134	0.885
NGO-Firm	195.177	139.000	-56.177	1.000	0.000
NGO-NGO	189.078	233.000	43.922	0.012	0.989

Table6 – Density of links between and within groups of respondents. NGO space.

Number of iterations = 10000					
	Expected	Observed	Diff.	P>= Diff	P>= Diff
Firm-Firm	31.460	11.000	-20.460	0.997	0.005
NGO-Firm	178.272	74.000	-104.272	1.000	0.000
NGO-NGO	226.268	351.000	124.732	0.000	1.000

ASSOCIATIONS- Comparisons BETWEEN types of organizations

Figure 6- FIRM space. Proximity between NGO and firm managers according to their associational profile (squares – NGO respondents, circles – firm respondents)

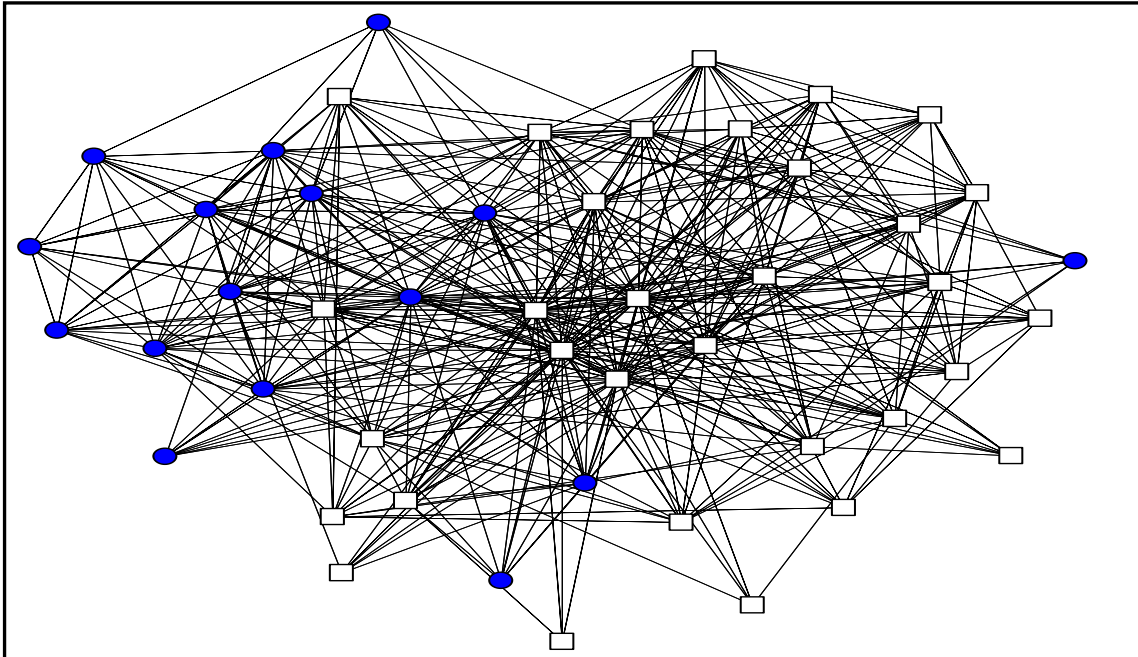
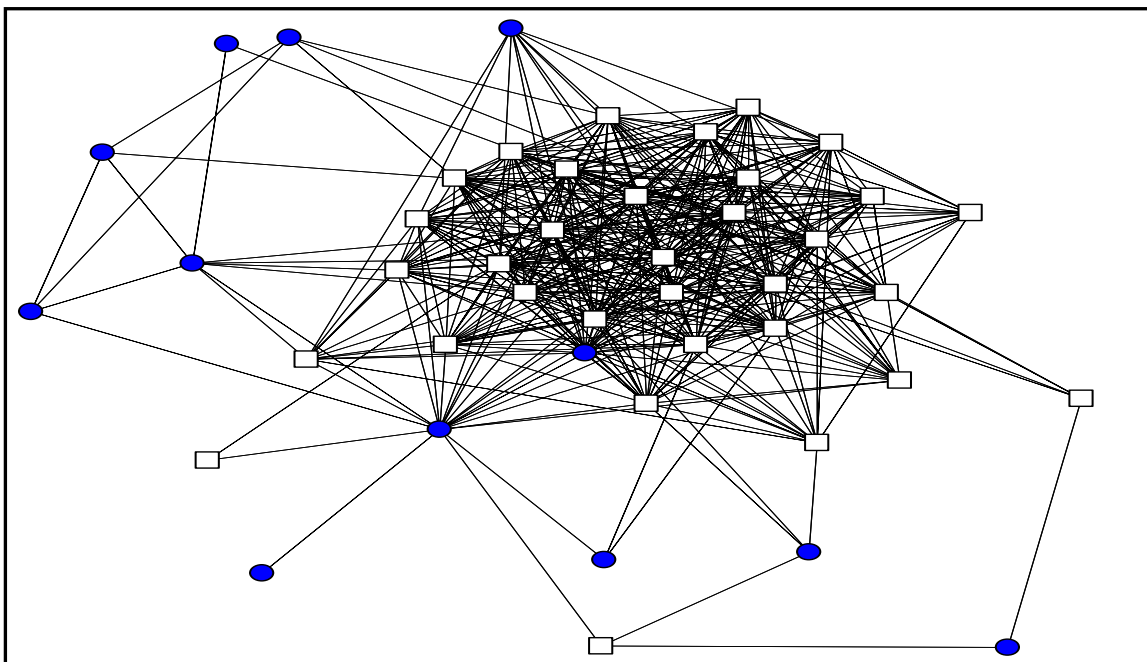


Figure 7- NGO space. Proximity between NGO and firm managers according to their associational profile



ASSOCIATIONS- OVERLAP in individual responses of NGO and Firm managers

Table 7- Test for overlap in associations. Firm space

Logistic regression		Number of obs = 48				
		LR chi2(4) = 21.63				
		Prob > chi2 = 0.00				
Log likelihood = - 19.73		Pseudo R2 = 0.35				
type	Coef.	Std. Err.	z	P>z	[95% Conf.Interval]	
coreness	65.94	20.42	3.23	0.00	25.92	105.97
farness	.21	.13	1.62	0.11	-.04	.45
betweenness	.15	.08	1.86	0.06	-.01	.31
_cons	-23.76	11.59	-2.05	0.04	-46.5	-1.05

Table 8- Test for overlap in associations. NGO space

Logistic regression		Number of obs = 45				
		LR chi2(4) = 25.00				
		Prob > chi2 = 0.00				
Log likelihood = - 13.60		Pseudo R2 = 0.48				
type	Coef.	Std. Err.	z	P>z	[95% Conf.Interval]	
coreness	118.31	79.55	1.49	0.14	-37.61	274.23
degree	-.72	.59	-1.23	0.22	-1.87	.43
farness	-.03	.10	-0.34	0.73	-.23	.16
betweenness	.01	.03	0.25	0.80	-.05	.07
_cons	6.11	19.17	0.32	0.75	-31.47	43.68

CATEGORIES- Comparisons WITHIN types of organizations

Table 9 – Summary statistics on # of labels used by managers

	Firm managers	NGO managers
Firm space	Total # of terms : 109	Total # of terms : 120
	# terms/respondent:	# terms/respondent:
	AVG SD C.V	AVG SD C.V
	11.1 6.5 0.59	8.1 4.1 0.51
	# terms / respondent & pile :	# terms / respondent & pile :
AVG SD C.V	AVG SD C.V	
1.8 0.7 0.39	1.9 0.9 0.47	
NGO space	Total # of terms : 69	Total # of terms : 173
	# terms/respondent:	# terms/respondent:
	AVG SD C.V	AVG SD C.V
	7.8 4.1 0.52	15.2 6.9 0.45
	# terms / respondent & pile :	# terms / respondent & pile :
AVG SD C.V	AVG SD C.V	
1.9 0.7 0.36	1.9 0.5 0.28	

Figure 8- Distribution of # of labels used by respondent and organizational field

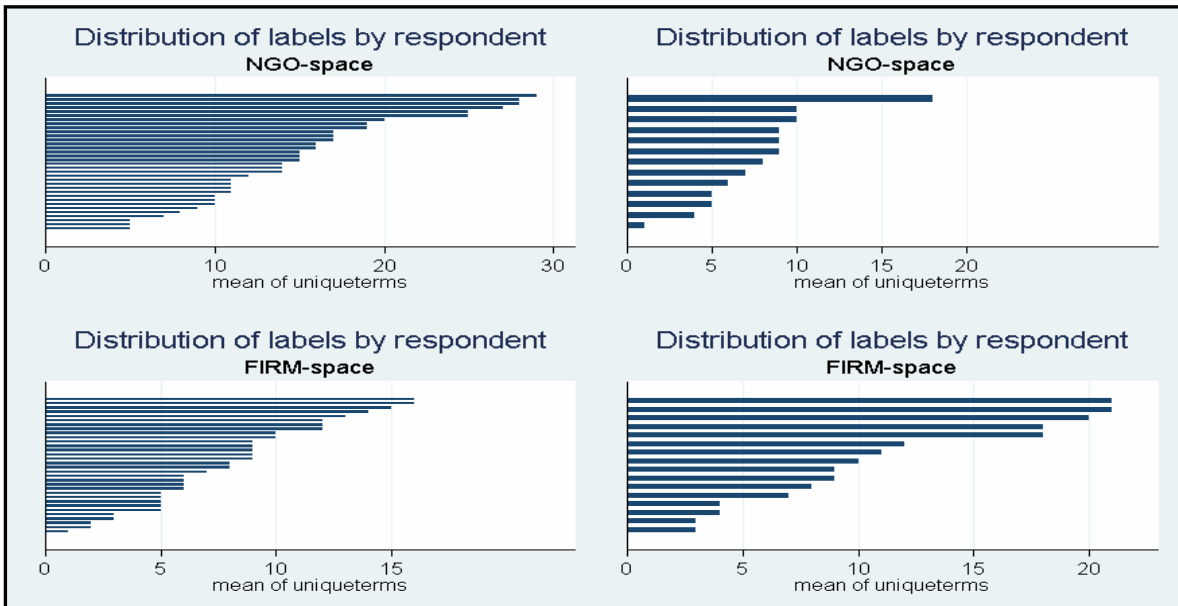


Table 10- # of times a given label was used to describe a particular organization in the card deck

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
NGO-SPACE																					
NGO	1393	282	80	49	26	26	14	11	7	12	9	8	5	2	11	3	5	4	1	0	1
FIRMS	680	44	3	0	1	1															
FIRM-SPACE																					
NGO	450	70	21	11	6	3	3														
FIRM	530	132	36	14	5	3															

CATEGORIES- Comparisons BETWEEN types of organizations

Figure 9 – Relative use of labels by firm and NGO managers. NGO-Space

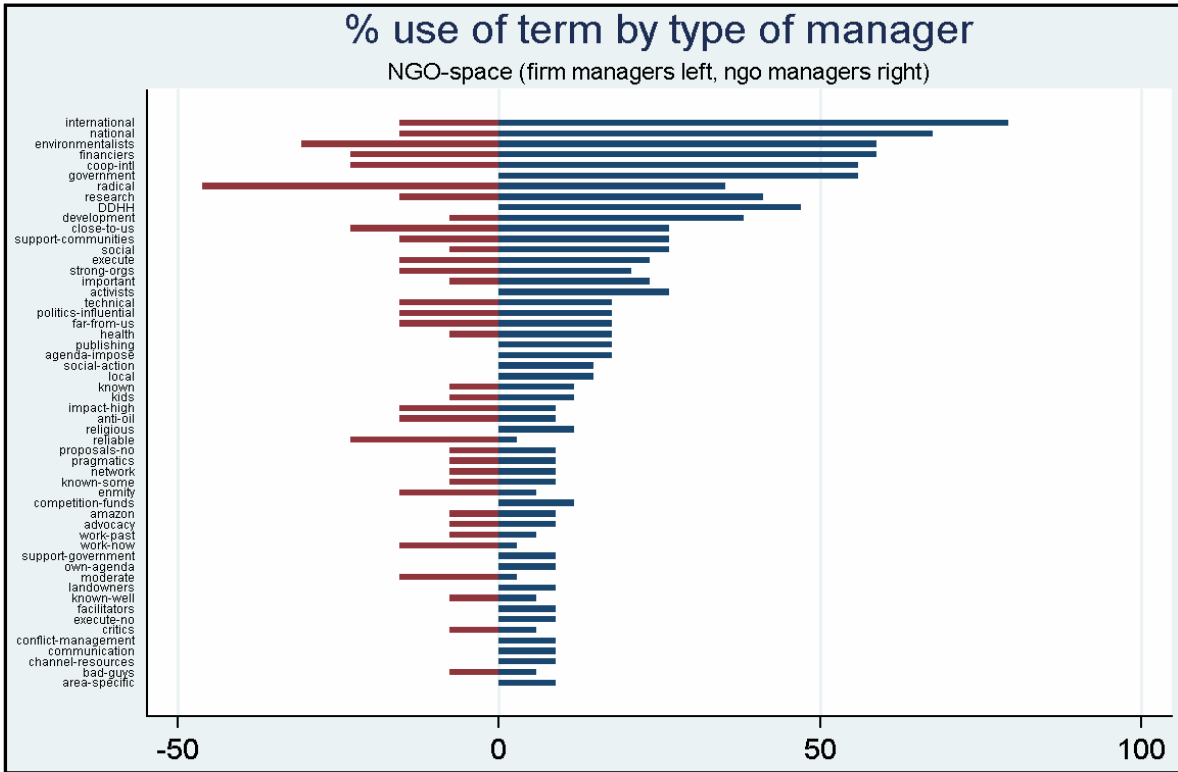
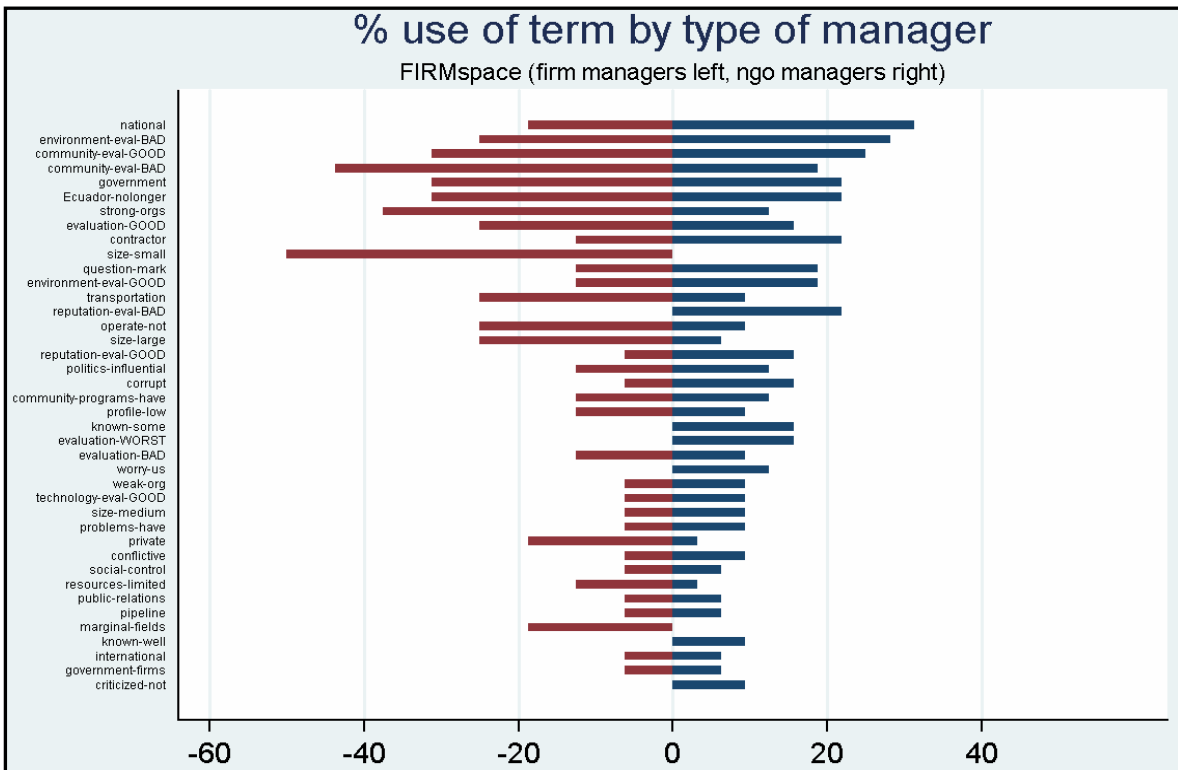


Figure 10- Relative use of labels by firm and NGO managers. Firm-Space

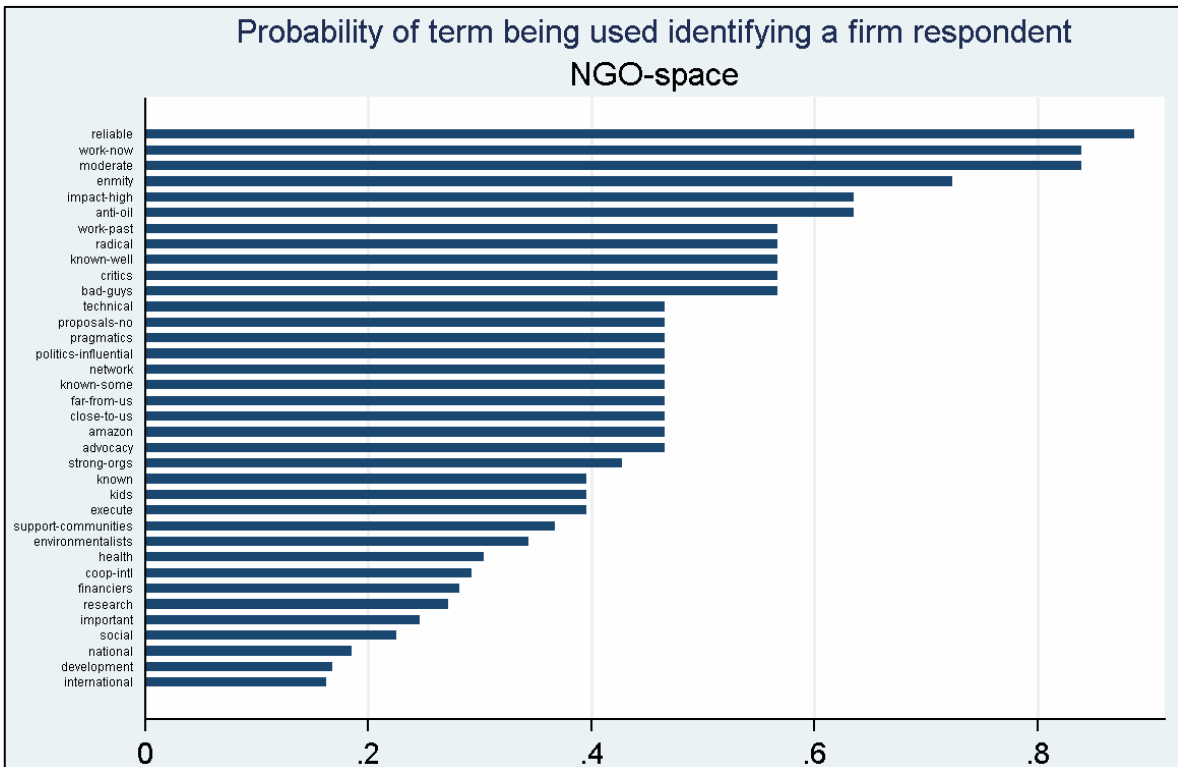


CATEGORIES- OVERLAP in individual responses of NGO and Firm managers

Table 11- T-test probability to identify a firm respondent by random extraction of a label

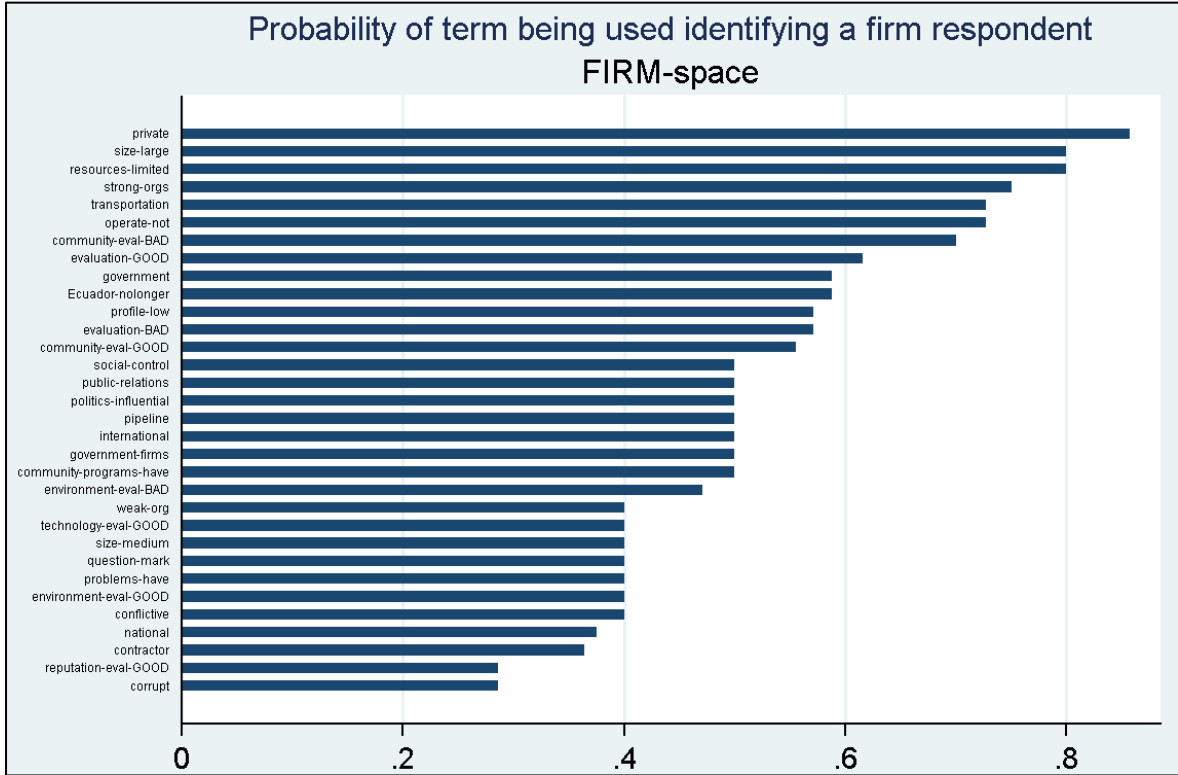
NGO-Space					
Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
prop - Firms	36	.46	.03	.18	.40 .52
mean = mean(prop) Ho: mean = .5			t = -1.36 Degrees of freedom = 35		
Ha: mean < .5 Pr(T < t) = 0.09		Ha: mean != .5 Pr(T > t) = 0.18		Ha: mean > .5 Pr(T > t) = 0.91	
FIRM-Space					
Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
prop - Firms	32	.53	.027	.15	.47 .58
mean = mean(prop) Ho: mean = .5			t = 1.08 Degrees of freedom = 31		
Ha: mean < .5 Pr(T < t) = 0.86		Ha: mean != .5 Pr(T > t) = 0.29		Ha: mean > .5 Pr(T > t) = 0.14	

Figure 11- Probability of term being used by a firm respondent. NGO-Space
(terms mentioned at least 3 times and by at least one of each type of respondents)



CATEGORIES- OVERLAP in individual responses of NGO and Firm managers

Figure 12- Probability of term being used by a firm respondent. Firm-Space
(terms mentioned at least 3 times and by at least one of each type of respondents)



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