NONPROFIT COLLABORATIONS: INCIDENCE, STRUCTURE AND OUTCOMES[1]

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[1] This paper draws on "Digital Inequalities and Interorganizational Relationships Among Nonprofit Organizations" by Curtis Child (Unpublished paper, Bloomington, IN: Indiana University Department of Sociology, May 2005) and Indiana Nonprofits: Affiliations, Collaborations, and Competition by Kirsten A. Grønbjerg and Curtis Child (Bloomington, IN: Indiana University School of Public and Environmental Affairs, October 2004). We are grateful to the many Indiana nonprofits that responded to the survey on which our analysis is based and to the Aspen Institute's Nonprofit Sector Research Fund, the Central Indianapolis Community Foundation, and Indiana University Center on Philanthropy (with funding from the Lilly Endowment Inc.) for financial support. Additional support was provided by Indiana University; Ball State University; the University of Southern Indiana, and WBH Evansville, Inc. The survey was managed by the Center for Survey Research at Indiana University with follow-up work by Ange Cahoon, Amy Horst, Hun Myoung Park, Allison Leeuw, Julie Schaefer, and Erin Nave. We have benefited from analyses of the survey data carried out by Linda Allen, Patricia Borntrager, and Richard Clerkin and from the comments by the project advisory board, and colleagues at Indiana University. The efforts of all of these strengthened this work enormously while all remaining problems reflect our shortcomings.

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ABSTRACT

Drawing on a survey of 2,206 nonprofit organizations we use multivariate analysis to examine the relative importance of environmental uncertainty, transaction cost economics, resource dependency, and institutional forces on nonprofit collaborative activities, while controlling for key organizational characteristics. We find that all four models help explain the incidence and structure (formality, size, and heterogeneity) of such activities, but that some types of structures appear more relevant for securing certain kinds of organizational capacities (reputation or visibility, funding, staff, volunteers, or board members) than others. We conclude with a summary of our findings and their implications for policy and future research.

INTRODUCTION

Open systems perspectives (e.g., Thompson, 1967), which have long dominated much of organizational theory, point to the importance of understanding how organizations relate to their environment, especially the actions of other organizations. Over time, research on inter-organizational relationships has broadened considerably to span the gamut from competition to collaboration (e.g., Oliver, 1990; Galaskiewicz, 1985; Foster & Meinhard, 2002; Guo and Acar, 2005; Thomson, 2001a, b; Hannan and Carroll, 1989, 1992). There has been a corresponding elaboration of conceptual frameworks to explain how, when, and why organizations form relationships with one another – most prominently contingency theory (Galaskiewicz, 1987; Milliken, 1987), transaction

cost economics (Williamson,1975, 1981, 1985; Williamson and Masten, 1995), institutional theory (DiMaggio and Powell, 1983; Meyer and Rowan, 1977; Meyer and Scott, 1983), and resource dependency theory (Pfeffer and Salancik, 1978).

Inter-organizational relationships (IORs) may take a variety of forms, ranging from vertical relationships of power and hierarchical control or regulation to more horizontal relationships of competition and collaboration. We focus here on collaborative relationships, although we recognize that these may be embedded in formal headquarter-chapter affiliations or other types of hierarchical relationships. They may also be accompanied by (or result in) competition for a variety of resources.

Collaborative relationships are of special concern to nonprofits. Unlike in the private sector where collaborations may be suspect and are occasionally referred to as collusion, there is a normative expectation that nonprofit organizations will work together to achieve desired ends. Indeed, there is a long historical tradition of collaboration among nonprofits. As early as the middle of the 19th century, Associations for Improving the Conditions of the Poor and Charity Organization Societies sought to coordinate the work of charities and prevent duplication of services. Later, social service councils and federated funding organizations (such as the predecessors to United Way) continued these efforts (Bremner, 1966:51-57).

Moreover, nonprofit collaborative relationships often span sector boundaries, as nonprofits work in partnership with government agencies or for-profit organizations to achieve specific goals. As such, these collaborative structures are integral to the "new public management" paradigm, in which government carries out public policy under a variety of cooperative structures with other organizational actors (Thomson, 2001a, b, 2002; Provan and Milward, 1991, 2001; Radin, 1996;

Gazley, 2004; Salamon, 2002).

In this paper, we first review four key theoretical perspectives related to understanding collaborative IORs and present the hypotheses that guide our empirical analysis. We also argue that these activities are likely to be particularly important to nonprofit organizations because of challenges nonprofits face in delivering services and developing organizational capacity.

We then turn to an empirical analysis of nonprofit involvement in collaborative relationships, using survey data from 2,206 Indiana nonprofits of all types. We first present several models of multivariate analysis to assess the relative importance of environmental uncertainty, transaction cost economics, resource dependency and institutional theory on the incidence and structure of nonprofit collaborative IORs, while controlling for such basic organizational features as field of activity, size, and age. We then explore whether and how the structure of IORs (formality, size, and heterogeneity) help explain whether nonprofits view these relationships as facilitating their abilities to deliver needed programs or secure key organizational capacities (e.g., reputation or visibility, ,funding, staff, volunteers, or board members). We conclude with a summary of our findings and their implications for policy and future research.

ACCOUNTING FOR INTER-ORGANIZATIONAL RELATIONS

As suggested above, organizational theorists interested in how organizations relate to their environments have long sought to explain and predict IORs. However, there have been relatively few efforts to apply these perspectives to collaborative activities among nonprofit organizations. Foster and Meinhard's (2002) study of 645 Canadian nonprofits examined the impact of perceptions of environmental changes, organizational characteristics, motivation to collaborate, and competitive

outlook (but not resource dependency, except for size). They found that perceptions of environmental changes intensified the motivation to collaborate, and to be involved in more formal collaborations, as did larger size and feminist orientation.

Gua and Acar's (2005) study of 95 Los Angeles public charities examined whether indicators of resource dependency (measured by size), institutional theory (measured by government funding and industry), and board network linkages influenced involvement in formal collaborations. (They did not include indicators of environmental uncertainty.) They found positive associations for size, government funding, and board linkages, and negative relationships for education/research and social service industries.

Our analysis builds on but goes beyond these studies by testing models that incorporate a broader array of theoretical perspectives. We focus on four theories that have received prominent attention among scholars: environmental uncertainty, transaction cost economics, resource dependency, and institutional theory, but consider also organizational size, age, and field of operation.

Environmental Uncertainty

Perceived environmental uncertainty – the inability to accurately predict some aspect of the organization's external environment (Milliken, 1987) – may motivate organizations to join collaborations or networks because doing so may help them obtain more and/or better information and gain a sense of security and predictability (Galaskiewicz, 1985:287, Foster and Meinhard, 2002:553). This is likely to hold regardless of the three types of uncertainty identified by Milliken (1987): state uncertainty (where organizational members are unable to ascertain the state of the

environment), effect uncertainty (where members are able to determine the state of the environment, but are uncertain about the effect that this will have on their organizations), and response uncertainty (where members of an organization understand the state of the environment, can predict the effect that the environment will have on the organizations, but are uncertain about their response options or what the effect of a particular response would be).

Faced with such uncertainties, Oliver (1990) suggests that IORs are "coping strategies" by which organizations attempt to secure more and better information in order to manage the unpredictable nature of their environments. We argue that nonprofits subject to broader expectations or encountering more changes will face distinctive conditions of environmental uncertainty and therefore be more likely to engage in IORs.

Specifically, we hypothesize that IRS-registered charities (501c3 organizations), eligible to receive tax-deductible contributions, will be more likely to be involved in collaborations or networks because they are expected to benefit the broader community and are therefore subject to broader public scrutiny. They are therefore likely to encounter multiple, inconsistent demands, which suggests that they operate in a state of increased environmental uncertainty in comparison to other types of nonprofits. We also hypothesize that nonprofits that are more aware of changes in community conditions or public policies will be more involved in IORs because they are more directly exposed to environmental uncertainty. For the same reason, we hypothesize that nonprofits more subject to scrutiny and more aware of community or policy changes are likely to be found in larger and more heterogeneous coalitions or networks than their counterparts, because such networks are likely to provide more comprehensive information.

Hypothesis 1a: IRS-registered charities will be more involved in collaborative IORs than other types of nonprofits and in formal, larger and more heterogeneous IORs.

Hypothesis 1b: Nonprofits aware of a greater variety of recent community changes will be more involved in collaborative IORs and in formal, larger and more heterogeneous IORs.

Hypothesis 1c: Nonprofits aware of a greater variety of recent policy changes will be more involved in collaborative IORs and in formal, larger and more heterogeneous IORs.

Transaction Cost Economics

A second perspective, transaction cost economics (TCE), takes its departure in the fact that organizations are, in essence, formalized structures for carrying out specialized tasks. Thus all organizations have some internal division of labor and must coordinate activities across units using information and other exchanges. They are also part of larger specialized transaction systems in that they seek to produce specialized goods and services that others want while they must also secure particular types of goods or services for their own operations (e.g. raw materials, manufactured goods, money, information, or expert advice).

Transaction cost economics (Williamson, 1975, 1981) argues that IORs arise as a mechanism for organizations to increase the efficiency of exchanging goods and services with other entities internal or external to the organization. Such transactions impose costs because both parties must obtain critical and detailed information both about the goods and services to be exchanged and about their exchange partners in order to decide whether and how to proceed with the exchange. The human

and material costs associated with these transactions—above and beyond the direct costs of the particular good or service—are referred to as transaction costs and do not only occur in buyer-seller relationships but apply to any inter-agent exchange. Although transactions may create only small inefficiencies on a case by case basis, they can become quite expensive when summed up over numerous transactions. One mechanism by which organizations can reduce these costs and increase efficiency is by forming IORs so that transactions formerly made with an external agent now take place under the umbrella of the collaborative institution where more information about transaction partners are available and sanctions more easily applied. (While forming and participating in IORs may introduce a new set of transaction costs, we view these as less significant than the transaction costs that prompt organizations to form IORs in the first place.)

We hypothesize that nonprofits involved in externally focused programs should be more likely to be involved in collaborations or networks, and in larger and more heterogeneous ones. To test this, we focus on nonprofits' advocacy activities as one example of this type of externally-oriented program, since advocacy necessarily requires nonprofits not only to interact with the external targets of their activities (e.g., government agencies) but with other groups concerned about the same issues. These efforts subject them to high transaction costs. Participating in IORs makes it easier for nonprofits to obtain information about the target institutions, coordinate their activities with others, and bring greater pressure to bear on the target institutions, and therefore increases their effectiveness and efficiency. As a corollary to this argument, we explore whether access to information technology (IT) by itself provides incentives for nonprofits to participate in collaborations or networks and to participate in formal, larger and more heterogeneous relationships because such technology lowers the costs of obtaining information about the actions of others.

Hypothesis 2a: Nonprofits involved in externally focused programs (such as advocacy) will be more likely to be involved in collaborative IORs and in formal, larger, and more heterogeneous IORs.

Hypothesis 2b: Nonprofits with greater access to information technology will be more likely to be involved in collaborative IORs and in formal, larger, and more heterogeneous IORs.

Resource Dependency

A third perspective, resource dependence theories, is closely related to TCE and focuses explicitly on the fact that organizations rely on extra-organizational agents for key resources (Galaskiewicz, 1985: 284-285; Froelich, 1999). To understand organizations, then, is to understand how they conform or adapt their behavior to secure resources from external groups or agents that are able to exert pressure on them (Pfeffer and Salancik, 1978). The pressure or influence depends on how resources are structured and how important the relationships are to each party to the exchange. Because organizations are dependent on resources for their survival, they are subject to the demands and desires of entities that provide essential resources and will adopt organizational forms and actions so as to align themselves with the most important resource relationships.

This perspective has particular utility for understanding nonprofit organizations, which are perennially short on resources to maintain programs and services. Therefore, organizations that lack resources may be inclined to participate in collaborations with other entities as a way to secure more resources (Gao and Acar, 2005; Galaskiewicz, 1985:282; Grønbjerg, Chen & Stagner, 1995). This is especially likely to be the case if the sources on which they are dependent for resources encourage them to do so, as government and other donor agencies may do. In short, the emphasis from this

theoretical perspective is that an organization's resource dependencies are critical for understanding why and when an organization will form external linkages. Consequently, we hypothesize that nonprofits that depend on government funding will be more likely to participate in collaborations or networks and that these relationships are likely to have more members and involve a greater variety of organizations. Gao and Acar (2005) measure resource dependency by total revenues and use government funding to indicate the presence of institutional pressures. We believe size is more appropriately treated as a control variable but agree that government funding may also be conceptualized as an indicator of institutional pressures.

Hypothesis 3: Nonprofits that receive government funding are more likely to be involved in collaborative IORs and in formal, larger and more heterogeneous IORs.

Institutional Forces

Institutional theories approach IORs from a fourth, somewhat broader, perspective by arguing that organizations operate in an environment saturated with rules and norms (Meyer and Rowan, 1977; Scott, 2001, 2000; Scott, et al 200l; DiMaggio and Powell, 1983). To survive, organizations must not only obtain the necessary material resources and manage their activities efficiently, but they must comply with institutionalized standards if they are to be seen as credible and legitimate actors by others in their environment. They become legitimate by mimicking or adopting recognized organizational structures, even if doing so does not actually promote efficiency or effectiveness.

Organizations may therefore take part in IORs if there are institutional pressures to do so (Oliver 1990; Gao and Acar, 2005). In the case of nonprofits, there are normative expectations that

nonprofits collaborate, as we noted above. More generally, nonprofits may seek to join collaborations in order to signify to donors, beneficiaries, or community stakeholders that they are legitimate participants in the field and therefore worthy of support. We have no direct measures of the extent to which nonprofits encounter institutional pressures to join collaborations, but explore whether nonprofits which report greater challenges in enhancing the visibility or reputation of their organization are more likely to participate in collaborations or networks, and in larger and more heterogeneous ones. We treat this as exploratory because nonprofits involved in IORs may report no or only minimal challenges precisely because such participation enhances their reputation or legitimacy.

Hypothesis 4: Nonprofits that encounter greater challenges in enhancing their visibility or reputation are more likely to be involved in collaborative IORs and formal, larger and more heterogeneous IORs.

The hypotheses discussed above outline our expectations about which types of nonprofits are likely to participate in collaborations or networks, as well as whether they are likely to participate in formal, larger and more heterogeneous ones. The first part of our empirical analysis tests these hypotheses.

The second part of our empirical analysis examines the perceived benefits of participating in collaborative IORs which the four perspectives outlined above do not specifically address, at least not for a cross-sectional analysis. If we had time series data, we would hypothesize that features associated with resource dependency and institutional theories (government funding, legitimacy challenges) might make collaborations or networks most useful for obtaining funding or enhancing

the reputation or legitimacy of the organization, while features associated more with environmental uncertainty and transaction cost economics (community and policy changes or involvement in advocacy) might make IORs most useful in meeting program objectives, such as client/member needs.

Given the speculative nature of these arguments and our inability to test them directly, the second part of our empirical analysis focuses mainly on whether differences in the formality, size and heterogeneity of IORs help nonprofits meet some goals better than others, while controlling for basic organizational features. In general, we expect formal, larger and more heterogeneous collaborative IORs to have greater utility because they are likely to be more predictable and to bring more and/or a greater variety of resources to the collaboration. However, the advantages may vary by the type of capacity involved and also by whether the organizations find it a challenge to secure the particular capacity. .

Hypothesis 5a: Nonprofits involved in formal, larger and more heterogeneous collaborative IORs will be more likely to report positive outcomes from collaborative IORs.

Hypothesis 5b: Nonprofits that report a particular outcome to present a challenge will be more likely to report that collaborative IORs help achieve that outcome.

DATA AND METHODS

We rely on a large survey of Indiana nonprofits to address these issues. Below, we describe the survey and how we operationalized our dependent and independent variables. We also describe major control variables used in the multivariate analyses.

Survey of Indiana Nonprofits

Data for this paper come from a cross-sectional survey of Indiana nonprofits which used as its sampling frame a comprehensive database of Indiana nonprofits of all types compiled from multiple source listings. A sample of 9,205 nonprofits was drawn from the database and a total of 2,206 nonprofits responded to the mail survey, producing a response rate of just below 30 percent once known defunct or otherwise ineligible organizations are excluded from the original sample base. (See Appendix A for details on the sampling frame and sampling procedures.)

Dependent Variables: Nonprofit Collaborative IORs

To measure key aspects of nonprofit participation in collaborative IORs, we rely on a section of the survey that focused on relationships with other organizations. Table 1 presents basic descriptive statistics for all variables included in the analysis.

<<Table 1 about here>>

Any/Formal Collaborative IORs. To identify nonprofits involved in any collaborations or networks, we use a screening question that asked whether the responding organizations was (1) involved in one or more formal collaboration (legal, fiscal, administrative, or programmatic exchanges) with other organizations, (2) involved in one or more informal networks (coalition, cooperation, coordination, working together) with other organizations, (3) involved in both formal collaborations and informal networks, or (4) not involved in any collaborations or networks. While the distinction between informal and formal collaborative IORs may have presented a challenge for

some respondents, our analyses suggest that the respondents' decision to identify their relations with other organizations as formal or informal (or both) was not random: bivariate and multivariate analyses show significantly different results depending on the type of relationship in question.

More than half (57 percent, see Table 1) of the responding nonprofits say they are involved in collaborations or networks, including 42 percent involved in informal networks. More than a quarter (27 percent) say they are involved in formal collaborations, which includes 13 percent that are involved in both formal collaborations and informal networks. Bivariate analysis suggests that larger nonprofits and those with basic information technology components are more likely to indicate that they participate in formal or informal relationships than their counterparts.

Size of Collaborative IORs. Those that reported some involvement (response options 1, 2 or 3 above) were asked to indicate how many organizations were members of their most important collaboration or network (and also to briefly describe the purpose of it). We use responses to the former question to measure the size of the collaborative IOR. More than one-half (56 percent) of the nonprofits involved in collaborations or networks say that their most important network or collaboration involves five or fewer organizations and three-quarters (75 percent) say it includes 10 or fewer. The rest are split about evenly between those that have 11 to 20 participating organizations (12 percent), or more than 20 organizations (13 percent). Because this measure is highly skewed, we use the log value of the number of collaboration or network members in the analyses below.

Homogeneity of Collaborative IORs. We also consider the homogeneity of the collaboration or network. Respondents were asked to indicate which of seven types of organizations were involved in their most important collaboration or network: religious bodies; other religious or faith-based organizations; secular service organizations; nonprofit advocacy organizations; nonprofit mutual

benefit (membership) organizations; business or other for-profit organizations. We use a count of the number of types of organizations involved in the most important collaboration or network to measure the homogeneity of the collaborative IOR. A score of 1 signifies that the nonprofit collaborates with only one type of organization, while a 7 indicates that the organization has linkages with all seven different types of organizations. The former suggests rather narrow relationships, while the latter emphasizes collaborative IORs that cross multiple boundaries.

Most collaborative IORs are quite homogeneous, involving similar types of organizations. About one-third (34 percent) of nonprofits that form relationships with other organizations say that their most important network or collaboration involves only one type of organization and two-thirds (67 percent) say it involves two or fewer types of organizations.[2] More than nine out of ten (92 percent) indicate they collaborate with four or fewer different types of organizations. As Table 1 shows, on average collaborative IORs involved 1.2 types of organizations for all Indiana nonprofits.

Impact of Collaborative IORs. Finally, we measure the impact of collaborations or networks directly from a question which asked respondents to indicate in general how these relationships impacted their capacity to obtain funding, recruit/keep staff, recruit/keep board members, recruit/keep volunteers, meet client/member needs, or enhance the organizations visibility or reputation. Respondents were given the following options for the impact on each of these capacities: harder, no impact, easier, or not applicable.

The majority of nonprofits that are involved in collaborations or networks say that these relationships generally make it easier for them to enhance their visibility and reputation (68 percent)

[2] Slightly less than 4 percent of nonprofits involved in collaborative relationships did not select any of seven types of organizations listed in the survey.

and to meet their client or member needs (55 percent). About two-fifths (39 percent) say the relationships make it easier for them to obtain funding, 30 percent say these relationships make it easier to recruit or keep volunteers, and one in five indicates the same about recruiting or keeping staff (19 percent) or board members (19 percent). But 40 to 50 percent say that participating in their most important collaboration or network has no impact on their ability to recruit or keep volunteers, staff or board members, suggesting that collaborative IORs generally are not particularly useful in addressing human resource challenges.

Independent Variables: Environmental Uncertainty

As noted above, we hypothesize that certain key organizational characteristics and activities significantly affect whether nonprofits are involved in collaborations or networks in order to address environmental uncertainties, as well as the formality, size and homogeneity of these collaborations or networks. We also speculate that such involvement helps them secure certain organizational capacities.

Tax Status. We use information on whether the organization was included in the IRS listing of tax-exempt entities under sub-section 501c3 of the IRS code to identify nonprofits that are recognized as charities. Almost one-third (32 percent) of our sample of Indiana nonprofits are registered as such.

Awareness of Community Changes. We include a measure of how aware organizations are of changes in their local community, although we have no direct way of knowing how accurate these perceptions are. However, for purposes of this analysis, perceptions are most important since they

should influence how motivated nonprofits are to address the impact of these changes.

The survey asked respondents to indicate whether any of seven broad community conditions had stayed the same, increased or decreased during the last three years: employment and/or business opportunities; population size; family/household income; ethnic/racial diversity; crime and violence; tension or conflict among community groups; and "other" community changes. On average, nonprofits reported that two of these conditions had changed, with the great majority (72 percent) reporting that at least one of the seven conditions changed, including one-fifth (22 percent overall) that reported changes in four or more community conditions.

Awareness of Policy Changes. The survey asked similar questions about nonprofit perceptions of changes in key policy issues: health and safety regulations (e.g. OSHA); client eligibility for government programs; professional licensing requirements; personnel/legal regulations; government contract procurement policies, or any "other" policy. Only 36 percent of Indiana nonprofits indicate that at least one policy changed over the last three years, including 21 percent (overall) which reported that two or more policies did so. The average number of policies that changed was 0.78.

Independent Variables: Efficiency Incentives (TCE)

We use one measure of externally determined program goals, involvement in advocacy, to assess whether nonprofits participate in IORs in order to minimize the costs of transacting with external actors. As noted above, we also explore whether the lower transaction costs associated with having access to information technology by itself constitutes incentives for nonprofits to participate in IORs.

Advocacy. As suggested by the TCE perspective, organizations may collaborate in order to achieve programmatic goals, such as advocacy, more efficiently. Advocacy need not necessarily be a collaborative effort but those that do collaborate are likely to bring greater pressure to bear on the policy issue and therefore be more efficient as well as more effective. Our measure for advocacy is dichotomous, based primarily on three survey questions regarding the nonprofits' advocacy and political activities. We coded nonprofits as participating in advocacy if they indicated that they seek to promote positions on certain policy issues or positions relevant to the interests of certain groups, or if they promote the interest of certain political groups. About a quarter (27 percent) of the nonprofits in our study do so.

Information Technology. Having access to information technology makes it easier for nonprofits to participate in IORs by reducing the costs of communication. Respondents were asked to indicate whether they possess certain IT components. Sixty-five percent of nonprofits surveyed have computers available for key staff or volunteers; 54 percent have direct Internet access; 47 percent have an email address for the organization, and 34 percent have a web-site. We used these responses to create a communication-technology score that ranges from zero to four, rather than the types of simple binary indicators that have been have been criticized in the literature (Selwyn, 2004; DiMaggio & Hargittai, 2001; Jung, Qiu, & Kim, 2001). A zero indicates that the organization does not possess any of the organizational components, while a four signifies the organization has all of them. Nearly 30 percent of the Indiana nonprofits scored a zero and 26 percent scored a four, with the remaining organizations spread almost evenly across the other categories (14 percent, 14 percent, and 18 percent, respectively).

Independent Variables: Resource Dependency

We use one measure of dependency on public funding and expect this to be associated with greater involvement in IORs, in formal collaborations, in larger and more heterogeneous networks, and in helping organizations secure funding because of the complexity of managing government funding.

Government Funding. We use a dummy variable to indicate whether the organization receives any funding from government sources (grants, contracts, or fees) because previous research suggests that government funding is more likely to include specific demands for participation in collaborations or networks and to provide the type of funding (ongoing and significant) that is likely to maximize resource dependency (Grønbjerg, 1993). On average, government funding accounts for 8 percent of total revenues, but most (81 percent) receive no government funding, while some depend almost entirely on such support. Because of the skewed distribution of the percent funding from government, we experimented with alternative operationalizations of the variable (such as using dummy variables to capture various levels of dependence or taking the square root of the percent of government funding). The results of these alternative analyses are generally consistent with what we report here.

Independent Variables: Institutional Forces

We use one measure of the extent to which nonprofits are likely to be especially sensitive to demands that they demonstrate their legitimacy to external gate-keepers. However, as indicated above, our measure is potentially confounded with the impact of IORs, so we consider this to be only an exploratory assessment and examine variants of the models which alternatively exclude and

include this measure.

Legitimacy Challenges. We use responses to a question about whether enhancing the visibility or reputation of the organization presents a major challenge (as opposed to not a challenge, a minor challenge, or not applicable) as a proxy for measuring whether the organization is subject to major institutional pressures and facing a problem of legitimacy. More than a third (36 percent) said that enhancing the visibility or reputation of their organization was a major challenge and another 40 percent say that it is a minor challenge. We explore two versions of this variable: a dummy variable indicating whether enhancing the organization's visibility or reputation is a major challenge, and a three-level intensity variable indicating whether this is a major, a minor, or not a challenge (or not relevant).

Control Variables

Finally, we include several control variables that capture major organizational features which might also be expected to influence whether nonprofits are likely to participate in collaborations or networks, as well as the formality, size and scope of the IOR. These features include field of activity, size, and age.

Nonprofit Field. We use nonprofit fields as identified by the National Taxonomy of Exempt Entities (NTEE): arts, culture, and humanities; education; environment and animals, health; human services; international; public and societal benefits; religion; and mutual benefit. The fields differ on a wide variety of key dimensions, including not only the numbers and sizes of nonprofits involved, but also programmatic technology (e.g., operating homeless shelters, presenting operas, or

preserving natural habitats), and how nonprofits are impacted by government activities, demographic and economic developments, and private sector competition.

We use an open ended question about the organization's primary purpose or mission to classify it into one of 26 major NTEE-CC (National Taxonomy of Exempt Entities – Core Codes). When this did not provide enough information, we examined also description of the organization's three most important programs and activities and/or organizational website (if available). To simplify our analysis, we recoded the 26 NTEE-CC fields into the eight major categories listed above and dropped 18 other/unknown and international organizations from the analyses.[3] Table 1 shows the distribution of responding nonprofits across these fields.

Size. In general, we expect smaller nonprofits to find it more difficult to participate in collaborations or networks because they are less likely to have sufficient slack to carry out the activities. We therefore control for size in order to isolate the effects of other factors. We use the reported number of paid staff to measure the organization's size, rather than total revenues, in part because we have more complete information on the number of paid staff, but also because staff size is likely to be more important for ongoing participation in collaborations or networks than revenues. We use full-time equivalent paid staff (FTE), computed by adding the total number of full-time staff and one half the number of part-time staff. On average, nonprofits have 21 FTE staff members, but the range is enormous and we therefore use the square root of FTE staff members.[4]

[3] We also dropped one observation that reported an inexplicable 52,100 employees.

[4] While using the natural log may be more conventional, using the square root has some advantages because many of the nonprofits we surveyed have zero or .5 FTEs. The natural log of zero is undefined and the natural log of .5 is a negative value. These facts made using the natural log undesirable. Instead, we use the square root, which has a similar effect as the natural log, but without the consequences associated with values of zero and .5.

Age. The age of an organization may also be important for IORs in that older organizations have had longer time to become involved in such activities, while younger organizations may be sufficiently consumed with the challenge of overcoming "liabilities of newness" (Stinchcombe, 1965) to devote time and efforts to IORs. We therefore include a measure of the number of years since the organization was founded. The average nonprofits is 50 years old, but almost half (48 percent) were established since 1970 (including 21 percent since 1990) while one quarter (25 percent) is very old and founded before 1930.

FINDINGS

As this review of measures indicates, there are good empirical reasons for thinking that nonprofits would find it useful to participate in collaborative IORs. Thus most say that community conditions have changed (72 percent) and that they have been impacted by these changes (49 percent). Almost as many (45 percent) report that demands for services increased. However, most nonprofits are small (median revenues of $40,000) and therefore able to provide only a narrow range of services that are unlikely to meet more than a fraction of the need or demand for programs or services. Not surprisingly, therefore, many acknowledge that they face major challenges in securing funding (44 percent), delivering high quality programs or services (32 percent), or securing human resources (as indicated above).

Indeed, when asked to describe the purpose of their most important collaboration or network (an open-ended question), half gave various instrumental, program-related purposes, such as coordinating services or meeting needs (see Table 2).[5] The remaining responses are broadly

[5] Respondents at times indicated multiple purposes and the sum of responses may therefore exceed 100 percent.

consistent with several of the conceptual frameworks outlined above. Thus almost a third (31 percent) gave responses aligned with efficiency goals (e.g., sharing resources, personnel, or costs), resource dependency theory (e.g., fundraising or grant related purposes), or environmental uncertainty (e.g., sharing information or ideas). About a quarter (25 percent) said the purpose was to meet the types of relational obligations (e.g., denominational or national headquarter affiliations) typically associated with institutional forces.

<<Table 2 about here>>

Predicting Nonprofit Involvement in Collaborative IORs

We focus first on structural aspects of nonprofit involvement in IORs: What kinds of nonprofits are involved in collaborative IORs? And which features predict nonprofit participation in formal rather than informal, larger rather than smaller, and heterogeneous rather than homogeneous collaborative IORs? However, for the last two structural IOR dimensions we focus only on the IOR deemed the most important one by the responding nonprofit.

Table 3 presents the results of multivariate logistic regression analysis to assess how well the various independent and control variables explain participation in any type of collaboration or network (Model 1), participation in formal collaborations (Model 2), the size of the most important collaboration or network (Model 3), and the heterogeneity of the most important collaboration or network (i.e., number of different types of organizations that are members of the IOR, Model 4). For each model, we explore three variations: (a) one that excludes legitimacy/reputation as a challenge, (b) one that includes the legitimacy/reputation challenge variable as a dummy variable

(major, not major), (c) one that includes the legitimacy/reputation challenge variable as a three-level interval variable (major, minor, no challenge or not applicable).

<<Table 3 about here>>

As Table 3 shows, all models are highly significant, regardless of which aspect of participation in collaborative IORs is examined. We find support for at least one indicator associated with each of the conceptual frameworks outlined above, as well as several of the control variables, although the particular configurations vary some across the four models and the specific variations examined.

Environmental Uncertainty. The results are very significant for one of our indicators of environmental uncertainty. Controlling for all other factors, the more community changes that the responding organization is aware of, the more likely the organization is to participate in an IOR with other organizations and to participate in formal, larger and more heterogeneous collaborative IORs. This relationship holds regardless of whether or not we include the reputation/legitimacy challenge variable and supports the argument that nonprofits in 'uncertain' environments participate in IORs as a way to cope with the changing environment.

However, other indicators of environmental uncertainty (awareness of policy changes, status as a charitable nonprofit) are not significant, although awareness of policy changes is marginally significant for two of the variants of Model 3 (size of the IOR), but opposite as we had predicted – on average, nonprofits aware of more policy changes participate in smaller IORs. Hence, we find support for Hypothesis 1b, but not 1a or 1c.

Efficiency Incentives. Both measures of efficiency incentives appear to be important. Controlling for all other factors, the more information technology nonprofits have, the more likely they are to participate in formal (Model 2), in larger (Model 3) and more heterogeneous (Model 4) IORs. Information technology is also significant for one variant of Model 1 (predicting participation in some form of IOR) and marginally significant for another. These findings highlight the importance of e-information and e-communication technology in facilitating nonprofit participation in IORs. Technology assists in learning about existing networks and initiatives, makes it possible to participate in them through email and the Internet, and may broadcast to other nonprofits that the possessor of technology is a worthy collaborator.

We also find support for our other indicator of efficiency incentives. Net of other factors, nonprofits that participate in advocacy are more likely to participate in relationships with other organizations (Model 1), as well as in larger (Model 3) and more heterogeneous relationships (Model 4). There is also support for the argument that advocacy nonprofits are more likely to participate in formal IORs (Model 2), although the coefficient is significant only for the first variant of the model and marginally significant for the other two ($p = .06$ and .09, respectively). Forming collaborations appears to help nonprofits minimize high transaction costs that the outward focus and need to interact with other organizations imposes for those involved in advocacy. Thus we find general support for both Hypthesis 2a and 2b.

Resource Dependency. Consistent with our expectations, net of other factors nonprofits that depend on government funding are significantly more likely to participate in some IOR (Model 1), in formal (Model 2), and in larger (Model 3) relationships. The impact of government funding on the

heterogeneity of the nonprofits' most important collaboration is only marginally significant (Model 4). Nevertheless, these results provide moderate support for hypothesis 3.

Institutional Forces. We find at best only mixed support for institutional theory. The relationship between reporting reputation or legitimacy as a major challenge and various measures of IOR involvement (the second variant of our models) is sometimes positive, sometimes negative, but not statistically significant. Only one variant of the model to predict participation in larger IORs is close to statistical significance ($p<.08$), but in this case nonprofits reporting legitimacy or reputation as a major challenge participate, on average, in smaller IORs, not larger ones. This is contrary to our expectations. Perhaps nonprofits facing major challenges in enhancing their legitimacy or reputation are less attractive collaborative partners for other organizations, but if so, the patterns are not consistent across the models. As we noted earlier, the cross-sectional nature of our data do not allow us to determine the causal nature of these relationships.

The third variant of our models includes a three-level scale version of the legitimacy/reputation challenge variable (major, minor, not relevant or not a challenge). As Table 3 shows, this indicator is significant for Model 1 and confirms that the more intense the legitimacy/reputation challenge is the more likely nonprofits are to participate in some form of IOR. However, the intensity of the challenge is not related to participating in formal collaborations or to the size or heterogeneity of the IOR. Consequently, we find at best marginal support for Hypothesis 4.

Control Variables. Using human service nonprofits as the reference category and controlling for all other factors, we find significant effects only for environmental/animal nonprofits, and only for Model 4. These nonprofits, on average, are likely to participate in less heterogeneous collaborations

than human service nonprofits, controlling for other factors. All other odds ratios and coefficients are at best marginally significant. We note that using human service nonprofits as the reference category may constitute a fairly conservative test of whether nonprofit field is important, since these nonprofits are generally at the average for all nonprofits in terms of whether they participate in IORs and the size and composition of their most important IOR.

Somewhat surprisingly, neither the age (years since establishment) nor size of nonprofits (square root of full-time equivalent employees) are related to participation in any collaborative IORs (Model 1) or in formal (Model 2) or larger IORs (Model 3). However, there is a positive relationship between the size of nonprofits and the heterogeneity of their most important relationships (Model 4).

Predicting the Impact of Collaborative IORs

We turn now to several more tentative explorations of whether and how structural dimensions of the collaborative IOR help explain whether nonprofits find that their collaborations in general facilitate their capacity to meet six specific objectives: enhance their reputation; meet client/member needs; obtain funding; or recruit and retain volunteers, board, or staff members. We first explore whether the formality, size, and heterogeneity of the collaborative IOR is related to whether IOR participation helps secure each of the six capacities, controlling again for major organizational characteristics: nonprofit field, size, and age. However, we include IT score in the list of control variables because access to information technology is likely to influence how actively nonprofits can participate in the collaborative IOR, and therefore presumably how useful the IOR is.

We present four models for each of the six capacities. Model 1 examines whether participation in a formal collaborative IOR increases the likelihood that the IOR helps secure a given capacity, controlling for other factors, Model 2 whether larger collaborative IORs help secure a given capacity, and Model 3 whether more heterogeneous collaborative IORs do so. For Model 4 we include all three measures of collaborative structure, in addition to the control variables. These results are reported in Table 4. Table 5 presents the results for four additional models for each of the six capacities in order to test whether participation in collaborative IORs are more helpful to those nonprofits for which the given outcome presents a challenge.

<< Tables 4 and 5 about here>>

Impact of IOR Structure. Table 4 presents the results of logistic regression using measures of collaborative IOR structure to predict whether IORs help secure the six capacities, using the expanded list of control variables described above. Of the 24 models tested, all but one is significant. Only Model 2b, which tests whether participation in larger IORs makes it easer to meet the needs of clients or members, is not.[6]

The findings for Model 1 in Table 4 suggest that, using the expanded list of control variables, participation in formal collaborative IORs by itself significantly enhances five of the six outcomes: making it easer for nonprofits to meet the needs or clients or members; generate needed funding; and recruit and retain volunteers, board members, or staff. It is not related to enhancing the reputation and visibility of the organization (Model 1a), although it is significantly related if IT score

[6] In four models of Table 4 (2c, 4c, 2f, and 4f) the dummy variable for mutual benefit nonprofits is dropped from the analysis because it predicts failure (i.e. *not* benefiting from the IOR) perfectly. The same is true for the respective models in Table 5, including all of the models in panel E.

is excluded as a control (at p = 0.047; details not presented here). However, once we control for other structural dimensions of the collaborative IOR (size and heterogeneity) in Model 4, participation in formal collaborations is significantly related only to generating needed funding (Model 4c) (and marginally related to recruiting and retaining board members, Model 4f).

Model 2 examines the impact of the size of the collaborative IOR on each of the six outcomes. The findings indicate that participating in larger collaborative IOR do not appear to help nonprofits secure any of the six capacities. Analysis not presented in detail here shows that including the number of IT components as a control variable serves to mute the impact of the size of collaborative IORs. When IT score is excluded, size of IOR is significantly related to two of capacities: generating needed funds (Model 2c) and recruiting and retaining volunteers (Model 2d). These findings suggest that, at least under some circumstances, having access to information technology conditions the ability of nonprofits to benefit from participating in larger collaborative IORs.

Model 3 examines the impact of the heterogeneity of the collaborative IOR. We find that by itself heterogeneity is significantly related to three of the six outcomes and marginally related to one. The more diverse the composition of the collaborative IOR, the more likely it is to make it easier to enhance the reputation and visibility of the organization (Model 3a), meet client or member needs (Model 3b), and recruit and retain volunteers (Model 3d) or board members (Model 3f), but not staff members. Controlling for other structural dimensions of the collaboration (formality and size) in Model 4, heterogeneity of the collaborative IOR retains its significance for two of the five outcomes: enhancing the organization's reputation and visibility (Model 4a) and meeting the needs of clients or members (Model 4b). Eliminating IT components from the list of control variables has no

substantial impact on these results, except to further mute the effect of heterogeneous collaborations on recruiting and retaining board members. These findings provide general support for Hypothesis 5a, although the impact of collaborative IORs appears to depend both on its structural dimensions and on the specific capacity considered.

Impact of Management Challenges. Table 5 presents the same models as in Table 4, but includes dummy variables to indicate whether nonprofits reported that they found it a minor or major challenge to secure the particular capacity. Of the 24 models tested all are again significant, except for one (Model 6b) which tests whether participation in larger IORs makes it easer to meet the needs of clients or members. The corresponding Model 2b was also not significant in Table 4. Overall, the findings in Table 5 are generally consistent with those we reported for Table 4, except for a few changes in level of significance at the margins (Models 5a,5e, 6d, 7d, 7f, and 8a).

The results show that nonprofits which report that recruiting or retaining volunteers or staff members presents a challenge for them are significantly more likely than those without the challenge to say that participating in collaborative IORs helps them secure that particular capacity. These findings hold, regardless of whether we control for the IOR's formality (Model 5), size (Model 6), heterogeneity (Model 7) or all three dimensions (Model 8) and provide support for Hypothesis 5b (although only for some of the capacities considered). Models 5 and 6 in panel A and model 6 in panel C are also consistent with these findings.

Control Variables. The coefficients for control variables reported in Table 4 are generally consistent which those found in Table 5 when we also include challenge variables. We therefore focus primarily on the results in Table 4. Among the control variables, having access to information

technology significantly increases the odds that participating in IORs help nonprofits enhance their reputation and visibility (all models) or generate funds (all models). The evidence is more mixed for helping nonprofits meet client or member needs, or recruit and retain board members.

We find also that some fields appear to benefit more or less than human service nonprofits (the comparison group) for some capacities, but not necessarily for all models. For example, environmental and animal nonprofits find IORs helpful in generating funds when controlling for the size or heterogeneity of these collaborations (Models 2c and 3c), but are significantly less likely than human services nonprofits to report that collaborative relationships help them recruit and retain board members (panel F). Education nonprofits find IORs helpful in enhancing their reputation and visibility only when controlling for the size of IORs (Model 2a). Public benefit nonprofits appear to find IORs less helpful than human service nonprofits in generating funds regardless of IOR structure (all models) or in recruiting and retaining volunteers when controlling for whether IORs are formal (Model 1d) or large (Model 2d). Similarly, nonprofits in the religion field are less likely than human services nonprofits to report that their relationships with other organizations help them meet the needs of members or clients (except when controlling for all IOR dimensions, Model 4b), or in recruiting and retaining volunteers (again, except when controlling for all IOR dimensions, Model 4d) or board members (all models). Finally, mutual benefit nonprofits find IORs less helpful in recruiting and retaining staff (all models), in generating funds (Models 1c and 3c) or in recruiting and retaining board members (Models 1f and 3f).

Size and age of nonprofits is important only for some capacities and some IOR structures. Thus the probability of finding IORs helpful to generate funds or recruit volunteers decreases as nonprofits grow in size (Models 1c, 1f, 3c, and 3f), but this effect goes away when controlling for size of the

organization's most important relationship. Older nonprofits also tend to benefit from participating in collaborative IORs in recruiting and retaining volunteers (Model 1d), but not when controlling for size or heterogeneity.

Conclusion

In this paper we have examined whether indicators drawn from widely accepted perspectives on how organizations relate to their environment help explain a particular type of environmental relationship, namely nonprofit involvement in inter-organizational collaborations or networks. Drawing on a large survey of Indiana nonprofits we find that over half (57 percent) of Indiana nonprofits participate in formal collaborations or informal networks with other entities, with informal networks being more common than formal collaborations. The median number of organizations in Indiana nonprofits' most important network or collaboration is five and about half of the relationships are homogeneous in scope, involving only one or two different types of organizations.

We have used multivariate analyses to test whether indicators of environmental uncertainty, efficiency incentives, resource dependency, and exposure to institutional forces help predict whether nonprofits are involved IORs, in formal rather than informal IORs, as well as the size and heterogeneity of the organization's most important IOR. Controlling for key organizational characteristics (nonprofit field, size and age) we found that all models are highly significant, regardless of which aspect of participation in IORs are examined and we find support for at least one indicator associated with each of the four conceptual frameworks, as well as several of the control variables.

We have also explored whether the structure of IORs – their formality, size, and heterogeneity – helps account for nonprofits finding involvement in IORs useful in securing key organizational objectives. Overall, Indiana nonprofits are most likely to say that such participation makes it easier for them to enhance their visibility or reputation, meet client or member needs, and obtain funding, rather than address various human resource needs (e.g., secure volunteers, staff, or board members). We found that the formality and heterogeneity of IORs, rather than their size, are most consistently related to IORs making it easier for nonprofits to secure specific resources.

Finally, we have examined whether nonprofits which say that particular objectives present a challenge are more likely to find participation in collaborative IORs to be helpful in securing that capacity. We found that nonprofits that find it a challenge to recruit and retain volunteers or staff members are more likely to find participation in collaborative IORs helpful in addressing these specific challenges, regardless of how the IOR is structured. We also found that access to IT and small size tend to be associated with finding IORs helpful, while the age and field of nonprofits show more mixed patterns. However, across the board, the impact of IOR structure, management challenges, and control variables depends on the particular objective involved.

These findings draw attention to the variety of factors that may encourage nonprofits to participate in collaborative IORs, but also to other factors that appear to discourage such participation. The important role of information technology suggests that participation in IORs is intricately related to having easy access to quick and effective communication – we suspect this relationship will only strengthen as nonprofits become more wired and computer savvy. Thus one subplot of this paper is that many theories of IORs take for granted that all organizations 'come to the table' with the same material resources—such as access to computers, Internet, and e-mail—that allow them to

collaborate and join in relationships and that make them attractive partners for collaboration. The research presented here indicates that nonprofits vary in their technological resources and suggests that lack of information and communication technology may inhibit participation in IORs and may limit the beneficial impact of IOR participation. Theory on IORs should therefore make room for material considerations in predicting and explaining the extent to which organizations form linkages and collaborations with other organizations.

These findings raise also policy implications, especially in regards to nonprofits and technology. The positive relationship between technological capacity and participation in IORs may be part of a larger story about the 'digital divide' in the nonprofit sector. If, as suggested here, access to technology enables or constrains participation in IORs, researchers may do well to consider other nonprofit activities that are impacted by nonprofits' access to technology.

There are important limitations to our findings. First and foremost, the cross-sectional nature of our data does not allow us to test whether the conditions or characteristics that we found to be associated with participation in collaborative IORs or their beneficial impacts are, in fact, precursors rather than consequences of such participation or impact. It is entirely possible, for example, that participation in collaborative IORs serve to make nonprofits more aware of changing public policies or community conditions, more likely to recognize the utility of information technology and therefore to acquire them, and more aware of public funding opportunities and therefore likely to seek such funding.

For the same reason, we are also unable to determine whether nonprofits which encounter specific programmatic or management challenges, such as meeting the needs of clients or members or

securing needed funds, join collaborative IORs in order to solve those specific objectives, since collaborative IORs may have multiple – and shifting – goals. More importantly, we don't know whether participation actually reduces these challenges or just makes nonprofits more aware of how far they had to go.

There are also a variety of indicators that we would have liked to include, most notably better measures of institutional forces for predicting involvement in and the structure of collaborative IORs. For our analysis of the impact of collaborative IORs, we would have benefited enormously from including information on the quality of the collaborative relationships themselves – how intense they are, how long they have been in existence, and the degree to which participants share understandings and goals (Thomson 2001a, 2001b, 2002).

Finally, we recognize that participation in IORs is not an unmixed blessing. While involvement in networks and collaborations does help some nonprofits secure key organizational capacities, many nonprofits, in some instances a majority, say that their participation has no such effect. Indeed, nearly 20 percent of nonprofits involved in collaborative IORs say that their participation has no impact, makes it harder, or is not applicable to accomplishing any of the fundamental tasks. We also find that nonprofits which participate in collaborative IORS are more likely to say that they compete with other organizations for a variety of resources (visibility, clients, funding, and human resources), although we don't know whether collaboration actually increases competition or just makes nonprofits more aware of its existence. More importantly, participation in collaborative IORs requires time, effort, and willingness to consider new procedures – all transaction costs that may reduce the net benefits to the organization.

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APPENDIX A:
THE SURVEY OF INDIANA NONPROFITS

The Survey of Indiana Nonprofits used as its sampling frame a database of Indiana nonprofits compiled from multiple source listings in order to overcome known weaknesses in the IRS listing (see Smith 1997; Grønbjerg and Paarlberg, 2002). The sources included three statewide institutional listings: (1) all IRS-registered tax-exempt entities with Indiana reporting addresses (about 32,600), (2) all nonprofit incorporations in the state (about 29,400), and (3) all congregations listed in the yellow-pages of phone directories with Indiana phone numbers (about 9,000). In addition, a variety of local listings of nonprofits in eleven communities across the state were reviewed and included if not already contained in the three institutional listings (in most cases adding about 25 percent).

Additional listings came from a hypernetwork survey of Indiana residents about their personal affiliations with Indiana nonprofits as employees, congregants, volunteers, or attendees at association meetings or events during the previous year. When combined and duplicates eliminated, these listings produced an inclusive statewide sampling frame of 59,412 nonprofit organizations, containing not only charities, but also churches, advocacy nonprofits, and all types of mutual benefit nonprofits, whether IRS-registered in Indiana, elsewhere, or not at all.

A sample of 9,205 nonprofits was drawn from the database (including all nonprofits identified from the hypernetwork survey) using a stratified sampling design based on the type of source listing (personal engagement survey, IRS records, other official listings, or supplementary local listings) on which the organization's name was found, and its location (to allow for expanded samples in 12 communities across the state). A total of 2,206 nonprofits responded to the mail survey, producing a response rate of just below 30 percent once known defunct or otherwise ineligible organizations are excluded from the original sample base. (The response rate ranged between a high of 36 percent for the hypernetwork sample and a low of 27 percent for yellow-page

listed congregations and 28 percent for IRS listed nonprofits.) When weighted for strata differences in sampling rates, percentages of valid cases, and response rates, the survey data represent a statewide sample of Indiana nonprofits (for more detail, see self-reference). We analyzed the data with Stata Special Edition (version 9.2) using the survey commands (SVY) to correct for design effects associated with using a stratified sample with highly unequal sampling proportions by strata (StataCorp, 2003).

TABLE 1:
DESCRIPTIVE STATISTICS

VARIABLE	DESCRIPTION	MEAN	STD. ERROR	MIN	MAX	*N*
Dependent Variables						
Any IOR	1 if organization participates in a formal or informal relationship; else 0 (dependent variable)	0.57	0.02	0	1	2,055
Formal IOR	1 if organization participates in a formal relationship; else 0 (dependent variable)	0.27	0.02	0	1	2,012
Size of IORs	Log of number of organizations in respondent's most important collaboration (dependent variable)	0.89	0.05	0	9.44	1,760
Types of IORs	Number of *different types* of organizations in respondent's most important collaboration (dependent variable)	1.22	0.06	0	7	1,985
Environmental Uncertainty Theory						
Public Charity	1 if organization is an IRS-registered public charity; else 0	0.32	0.02	0	1	2,187
Community Change	Number of different community changes	2.00	0.07	0	7	1,902
Policy Change	Number of different policy changes	0.78	0.06	0	6	1,639
Transaction Cost Economics Theory						
Advocacy	1 if organization participates in advocacy; else 0	0.27	0.02	0	1	1,950
Technology Score	Number of technological components (computer, Internet access, e-mail, website) possessed by organization	1.98	0.06	0	4	2,036
Resource Dependency Theory						
Govt. Funding	1 if organization receives government funding;	0.19	0.02	0	1	1,984
Institutional Theory						
Major Reputation Challenge (a)	1 if enhancing visibility or reputation is a major challenge; else 0	0.36	0.02	0	1	1,952
Major Reputation Challenge (b)	0 if enhancing visibility or reputation is not applicable; 1 if it is not a challenge; 2 if it is a minor challenge; 3 if it is a major challenge	2.04	0.04	0	3	1,952
Control Variables						
Nonprofit field						
Arts	1 if organization is in Arts and Culture field; else 0	0.05	0.01	0	1	2,187
Human Service	1 if organization is in Human Services field; else 0	0.29	0.02	0	1	2,187
Environ-ment	1 if organization is in Environment/Animal field; else 0	0.03	0.01	0	1	2,187

Health	1 if organization is in Health field; else 0	0.04	0.01	0	1	2,187
Education	1 if organization is in Education field; else 0	0.08	0.01	0	1	2,187
Public Benefit	1 if organization is in Public & Societal Benefit field; else 0	0.19	0.02	0	1	2,187
Religion	1 if organization is in Religious and Spiritual Development field; else 0	0.24	0.01	0	1	2,187
Mutual Benefit	1 if organization is in the mutual benefit field; else 0	0.08	0.01	0	1	2,187
Size	Square root of number of full-time equivalent staff members	1.68	0.19	0	57.17	2,029
Age	Age of organization	50.47	2.02	0	302	2,020

TABLE 2:
PURPOSE OF MOST IMPORTANT COLLABORATION OR NETWORK

Type of Purpose	Percent of Nonprofits Involved in Relationships
Program Related	*50.5*
Coordinating services/ service delivery	19.2
Meeting community needs	8.1
Meeting member needs/fellowship opportunities	5.6
Similar mission	4.7
Promoting awareness	3.5
Lobbying efforts	2.8
Other	9.8
Management Related	*30.9*
Sharing resources/facilities/personnel	11.5
Fundraising/grant related	8.9
Sharing ideas/information	6.6
Training volunteers/employees/leaders	2.4
Sharing costs	2.4
Other	0.7
Relational	*25.3*
Denominational/religious affiliation	10.7
National organization	5.7
United Way/local umbrella organization	2.4
Other	7.5

N=1,077 (this is the number of organizations that participate in IORs and that answered the open-ended question regarding the purpose of their most important relationship)

Table 3: Multiple Regression on Participation in Any, Formal, Large or Heterogeneous Collaborative IORs

TABLE 3	Any relationship			Formal collaboration			Size of IOR			Heterogeneity of IOR		
Concept (variable name)	**Model 1a**	**Model 1b**	**Model 1c**	**Model 2a**	**Model 2b**	**Model 2c**	**Model 3a**	**Model 3b**	**Model 3c**	**Model 4a**	**Model 4b**	**Model 4c**
Environmental uncertainty												
Public charity	1.467	1.430	1.398	1.280	1.180	1.193	0.167	0.166	0.173	0.188	0.169	0.172
	(1.264)	(1.170)	(1.115)	(0.845)	(0.561)	(0.594)	(1.198)	(1.179)	(1.213)	(1.164)	(1.032)	(1.040)
# community changes	**1.266****	**1.262****	**1.234****	**1.300****	**1.349****	**1.338****	**0.110****	**0.122****	**0.119****	**0.162****	**0.162****	**0.158****
	(3.211)	(3.114)	(2.796)	(3.472)	(3.974)	(3.832)	(3.427)	(3.824)	(3.644)	(4.055)	(3.960)	(3.822)
# policy changes	0.912	0.897	0.876	0.996	1.009	0.985	**-0.093+**	-0.080	**-0.091+**	0.012	0.007	-0.001
	(0.846)	(1.000)	(1.178)	(0.041)	(0.098)	(0.165)	(1.769)	(1.531)	(1.732)	(0.192)	(0.116)	(0.016)
Efficiency Incentives												
Advocating NP	**3.403****	**3.141****	**2.962****	**1.871***	**1.655+**	**1.595+**	**0.556****	**0.563****	**0.552****	**1.005****	**1.049****	**1.034****
	(4.686)	(4.278)	(4.028)	(2.208)	(1.869)	(1.709)	(4.137)	(4.329)	(4.136)	(6.248)	(6.406)	(6.162)
Technology score	**1.211***	**1.192+**	1.146	**1.336****	**1.318****	**1.306****	**0.212****	**0.205****	**0.203****	**0.154****	**0.157****	**0.152****
	(2.116)	(1.959)	(1.516)	(2.930)	(2.719)	(2.587)	(5.032)	(4.872)	(4.748)	(3.142)	(3.149)	(2.956)
Resource dependency												
Government funding	**2.658***	**2.661***	**2.634***	**2.279***	**2.245***	**2.228***	**0.624****	**0.614****	**0.611****	**0.391+**	**0.418+**	**0.415+**
	(2.507)	(2.484)	(2.443)	(2.229)	(2.201)	(2.181)	(3.652)	(3.564)	(3.522)	(1.826)	(1.952)	(1.939)
Institutional forces												
Reputation & legitimacy		1.214			0.734			**-0.216+**			-0.125	
		(0.732)			(1.182)			(1.771)			(0.915)	
Reputation & legitimacy			**1.552****			1.024			-0.030			0.021
			(3.259)			(0.171)			(0.542)			(0.294)
Control variables - nonprofit field												
Arts/culture/humanities NP	1.855	2.073	1.770	2.397	**2.932+**	**2.602+**	0.148	0.252	0.194	0.141	0.192	0.136
	(1.251)	(1.380)	(1.066)	(1.558)	(1.800)	(1.659)	(0.759)	(1.134)	(0.905)	(0.653)	(0.823)	(0.591)
Environment/animal NP	0.629	0.609	0.530	0.600	0.755	0.672	-0.499	-0.413	-0.475	**-0.809****	**-0.823****	**-0.874****
	(0.493)	(0.544)	(0.721)	(0.863)	(0.470)	(0.675)	(1.512)	(1.282)	(1.451)	(2.692)	(2.668)	(2.891)
Health NP	1.212	1.058	0.993	0.586	0.500	0.474	0.131	-0.046	-0.075	-0.190	-0.340	-0.367
	(0.270)	(0.077)	(0.008)	(0.952)	(1.263)	(1.359)	(0.340)	(0.127)	(0.207)	(0.579)	(1.060)	(1.146)
Education NP	1.369	1.314	1.168	1.725	1.765	1.683	-0.399	-0.369	-0.394	-0.114	-0.131	-0.148
	(0.535)	(0.462)	(0.258)	(0.972)	(1.045)	(0.932)	(1.473)	(1.394)	(1.453)	(0.369)	(0.427)	(0.480)
Public/society benefit NP	1.015	0.958	0.973	1.724	1.621	1.588	-0.210	**-0.255+**	**-0.273+**	-0.270	-0.299	-0.305
	(0.040)	(0.112)	(0.072)	(1.354)	(1.191)	(1.138)	(1.314)	(1.651)	(1.753)	(1.232)	(1.338)	(1.374)
Religion NP	1.561	1.429	1.277	1.263	1.187	1.124	0.132	0.181	0.149	-0.021	-0.022	-0.054
	(1.232)	(0.986)	(0.681)	(0.568)	(0.423)	(0.286)	(0.757)	(1.010)	(0.832)	(0.098)	(0.101)	(0.244)
Mutual benefit NP	0.722	0.694	0.724	0.366	0.348	0.343	-0.073	-0.071	-0.081	**-0.491+**	**-0.467+**	**-0.457+**
	(0.563)	(0.612)	(0.519)	(1.184)	(1.247)	(1.257)	(0.309)	(0.310)	(0.337)	(1.831)	(1.755)	(1.683)
Other control variables												
Squareroot of FTEs	1.127	1.123	1.122	1.002	1.009	1.008	0.019	0.019	0.020	**0.036****	**0.040****	**0.039****
	(1.573)	(1.559)	(1.560)	(0.061)	(0.282)	(0.272)	(0.819)	(0.852)	(0.907)	(2.839)	(3.178)	(3.196)
Agein years	1.001	1.001	1.001	0.999	0.999	0.999	0.001	0.001	0.001	0.002	0.001	0.001
	(0.287)	(0.335)	(0.333)	(0.203)	(0.179)	(0.152)	(0.806)	(0.645)	(0.670)	(0.959)	(0.545)	(0.564)
Constant							0.035	0.076	0.101	0.210	0.287	0.246
							(0.276)	(0.593)	(0.716)	(1.133)	(1.560)	(1.317)
F-statistic	6.28**	5.52**	5.89**	3.33**	3.11**	3.08**	10.77**	9.62**	9.82**	13.65**	13.94**	14.26**
Observations	1255	1229	1229	1232	1206	1206	1098	1075	1075	1215	1190	1190
R-squared							0.27	0.26	0.26	0.27	0.27	0.27

Notes: + $p < .10$, * $p < .05$, ** $p < .01$. The results for the first two models are presented as odds ratios (i.e. the number e raised to the power of the logistic coefficient). The values for the second two models are linear regression coefficients. Values in parentheses for all four models are the absolute values of t-statistics.

Table 4. Logistic Regression on Impact of IORs and Control Variables on Obtaining Selected Capacities

	Enhance reputation/visibility (a)				**Meet client/member needs (b)**				**Generate funds (c)**			
Predictor Variables	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
IOR Dimension												
Any formal IOR	1.581			1.266	**1.693***			1.522	**2.292****			**2.045***
	(1.56)			(0.71)	(1.99)			(1.31)	(3.08)			(2.35)
Size of IOR		1.247		1.141		1.137		1.02		1.132		1.048
		(1.26)		(0.77)		(1.21)		(0.18)		(1.29)		(0.45)
Heterogeneity of IOR			**1.444****	**1.364***			**1.500****	**1.427****			1.142	1.136
			(2.86)	(2.15)			(3.84)	(3.07)			(1.54)	(1.34)
Control variables - nonprofit field												
Arts/culture/humanities NP	2.927	3.219	**3.435+**	2.523	1.26	1.607	1.395	1.551	1.605	1.915	**2.208+**	1.679
	(1.37)	(1.49)	(1.67)	(1.23)	(0.45)	(0.81)	(0.63)	(0.74)	(1.05)	(1.33)	(1.65)	(1.02)
Environmental/animal NP	1.383	1.586	1.685	1.648	0.288	0.281	0.301	0.314	**3.447+**	**3.579***	**3.604***	**3.746+**
	(0.49)	(0.67)	(0.85)	(0.71)	(1.42)	(1.45)	(1.28)	(1.12)	(1.86)	(1.99)	(2.20)	(1.86)
Health NP	1.369	**2.625+**	1.512	**3.349+**	2.613	1.611	2.782	2.006	0.989	1.073	1.035	1.079
	(0.38)	(1.66)	(0.42)	(1.71)	(1.40)	(0.70)	(1.52)	(0.99)	(0.02)	(0.13)	(0.06)	(0.13)
Education NP	1.827	**4.604***	2.138	**4.221+**	0.651	0.734	1.049	1.235	1.775	2.075	**2.747+**	3.157
	(0.92)	(2.18)	(1.17)	(1.94)	(0.71)	(0.45)	(0.08)	(0.30)	(0.95)	(1.00)	(1.68)	(1.58)
Public/society benefit NP	0.771	0.809	0.967	0.775	**0.428+**	0.506	0.472	0.564	**0.247****	**0.269****	**0.287****	**0.252****
	(0.55)	(0.40)	(0.07)	(0.46)	(1.96)	(1.40)	(1.63)	(1.10)	(3.35)	(2.88)	(2.88)	(2.99)
Religion NP	0.727	0.698	0.746	0.657	**0.463***	**0.460***	**0.426***	0.519	**0.521+**	0.543	**0.500+**	0.558
	(0.80)	(0.88)	(0.75)	(1.01)	(2.11)	(1.97)	(2.24)	(1.63)	(1.66)	(1.46)	(1.70)	(1.42)
Mutual Benefit NP	0.753	1.53	0.918	1.965	0.371	0.643	0.471	0.976	**0.011****		**0.010****	
	(0.30)	(0.52)	(0.09)	(0.71)	(1.08)	(0.48)	(0.86)	(0.02)	(4.15)		(4.14)	
Other control variables												
Squareroot of FTEs	0.998	0.973	0.986	0.954	0.998	0.997	0.978	0.969	**0.953***	0.99	**0.946***	0.959
	(0.09)	(0.82)	(0.48)	(1.38)	(0.07)	(0.07)	(1.00)	(0.88)	(2.07)	(0.33)	(2.33)	(1.23)
Age in years	0.996	0.997	0.995	0.996	0.996	0.998	**0.994+**	0.996	0.996	0.996	0.995	0.995
	(1.06)	(1.04)	(1.47)	(1.25)	(1.37)	(0.66)	(1.65)	(1.08)	(1.25)	(1.20)	(1.49)	(1.33)
Technology score	**1.303***	**1.432****	**1.346****	**1.427****	**1.184+**	1.136	**1.192+**	1.195	**1.314***	**1.332***	**1.444****	**1.307***
	(2.46)	(2.97)	(2.82)	(2.85)	(1.80)	(1.20)	(1.86)	(1.61)	(2.56)	(2.48)	(3.35)	(2.27)
Observations	885	765	887	727	883	766	886	728	886	758	890	721
F-statistic	2.04*	3.10**	2.90**	2.74**	2.84**	1.54	4.49**	2.42**	5.81**	3.67**	6.18**	3.71**

+ p < .10, * p < .05, ** p < .01

Notes: + p < .10, * p < .05, ** p < .01. The results are presented as odds ratios (i.e. the number e raised to the power of the logistic coefficient). Values in parentheses are the absolute values of t-statistics for the respective odds ratios.

Table 4. Logistic Regression on Impact of IORs and Control Variables on Obtaining Selected Capacities – continued

	Recruit/retain volunteers (d)				Recruite/retain staff (e)				Recruit/retain board members (f)			
Predictor Variables	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
IOR Dimension												
Any formal IOR	**1.857***			1.48	**2.073***			1.863	**2.131***			**1.826+**
	(2.36)			(1.29)	(2.16)			(1.51)	(2.48)			(1.82)
Size of IOR		1.153		1.109		1.106		1.097		1.179		1.115
		(1.58)		(1.06)		(0.93)		(0.82)		(1.50)		(0.88)
Heterogeneity of IOR			**1.207***	1.16			0.989	0.985			**1.182+**	1.109
			(2.17)	(1.49)			(0.12)	(0.13)			(1.70)	(0.88)
Control variables - nonprofit field												
Arts/culture/humanities NP	2.228	**2.522+**	**2.649+**	**2.628+**	**2.489+**	**2.570+**	**2.572+**	**2.680+**	1.907	1.871	2.142	1.86
	(1.48)	(1.66)	(1.84)	(1.69)	(1.66)	(1.65)	(1.67)	(1.73)	(1.18)	(1.11)	(1.40)	(1.09)
Environmental/animal NP	1.841	1.751	1.856	1.984	1.168	1.08	0.953	1.236	**0.139***	**0.111***	**0.134***	**0.119***
	(0.78)	(0.66)	(0.77)	(0.80)	(0.13)	(0.07)	(0.04)	(0.17)	(2.33)	(2.45)	(2.43)	(2.27)
Health NP	1.703	1.832	1.69	2.083	1.524	1.698	1.408	1.81	1.844	1.777	1.746	2.003
	(0.99)	(1.08)	(0.87)	(1.21)	(0.64)	(0.76)	(0.51)	(0.87)	(1.05)	(0.91)	(0.87)	(1.05)
Education NP	0.683	0.672	0.896	0.911	0.946	1.061	0.934	1.335	1.269	1.275	1.512	1.711
	(0.60)	(0.57)	(0.18)	(0.13)	(0.08)	(0.08)	(0.10)	(0.38)	(0.34)	(0.32)	(0.62)	(0.67)
Public/society benefit NP	**0.389***	**0.343***	**0.429+**	**0.364+**	0.574	0.456	0.521	0.525	0.552	0.571	0.557	0.629
	(2.03)	(2.07)	(1.79)	(1.93)	(1.12)	(1.52)	(1.29)	(1.17)	(1.19)	(1.03)	(1.17)	(0.86)
Religion NP	**0.388***	**0.361***	**0.356***	**0.409+**	1.027	0.763	0.789	0.96	**0.232****	**0.193***	**0.199****	**0.225***
	(2.26)	(2.25)	(2.44)	(1.95)	(0.06)	(0.52)	(0.53)	(0.08)	(2.59)	(2.57)	(2.93)	(2.33)
Mutual Benefit NP	0.368	0.389	0.342	0.551	**0.034****	**0.039****	**0.022****	**0.062***	**0.026****		**0.021****	
	(1.09)	(0.82)	(1.24)	(0.55)	(3.06)	(2.65)	(3.40)	(2.26)	(3.24)		(3.43)	
Other control variables												
Squareroot of FTEs	**0.905***	0.925	**0.903***	**0.901+**	1.017	**1.076+**	1.014	1.064	**0.945+**	0.978	**0.939+**	0.954
	(2.28)	(1.54)	(2.43)	(1.77)	(0.67)	(1.83)	(0.48)	(1.44)	(1.66)	(0.54)	(1.92)	(0.93)
Age in years	**1.007***	**1.007+**	**1.006+**	**1.007+**	0.999	0.998	0.999	0.997	0.999	0.998	0.999	0.998
	(2.00)	(1.77)	(1.73)	(1.66)	(0.38)	(0.40)	(0.31)	(0.60)	(0.18)	(0.30)	(0.20)	(0.48)
Technology score	1.189	1.15	1.191	1.166	1.136	1.066	1.135	1.114	**1.296+**	1.14	**1.295+**	1.199
	(1.54)	(1.19)	(1.61)	(1.26)	(1.00)	(0.48)	(0.99)	(0.75)	(1.87)	(0.88)	(1.87)	(1.16)
Observations	883	764	886	725	876	759	881	722	880	752	883	714
F-statistic	2.55**	2.05*	2.11*	2.23**	2.71**	2.55**	1.92*	2.74**	3.75**	2.74**	3.73**	2.68**

+ p < .10, * p < .05, ** p < .01

Notes: + p < .10, * p < .05, ** p < .01. The results are presented as odds ratios (i.e. the number e raised to the power of the logistic coefficient). Values in parentheses are the absolute values of t-statistics for the respective odds ratios.

Table 5. Logistic Regression on Impact of IORs, Resource Challenge, and Control Variables on Obtaining Selected Capacities

	Enhance reputation/visibility (a)				**Meet client/member needs (b)**				**Generate funds (c)**			
Predictor Variables	Model 5	Model 6	Model 7	Model 8	Model 5	Model 6	Model 7	Model 8	Model 5	Model 6	Model 7	Model 8
IOR Dimension												
Any formal IOR	**1.667+**			1.327	**1.659+**			1.459	**2.274****			**2.041***
	(1.70)			(0.86)	(1.89)			(1.18)	(3.07)			(2.34)
Size of IOR		1.364		1.254		1.14		1.014		1.16		1.076
		(1.49)		(1.16)		(1.22)		(0.12)		(1.44)		(0.67)
Heterogeneity of IOR			**1.445****	**1.333+**			**1.485****	**1.429****			1.14	1.126
			(2.62)	(1.87)			(3.79)	(3.09)			(1.51)	(1.26)
A challenge to												
Enhance reputation/visibility	**2.087***	**2.760***	1.625	1.929								
	(1.98)	(2.44)	(1.28)	(1.59)								
Meet needs of clients/members					1.619	1.649	1.493	1.519				
					(1.38)	(1.35)	(1.10)	(1.06)				
Obtain needed funding									1.971	**2.421***	1.863	1.944
									(1.57)	(1.98)	(1.51)	(1.53)
Control variables - nonprofit field												
Arts/culture/humanities NP	2.652	2.717	2.962	2.345	1.393	1.926	1.611	1.759	1.672	1.972	**2.230+**	1.775
	(1.21)	(1.23)	(1.44)	(1.10)	(0.63)	(1.11)	(0.89)	(0.95)	(1.17)	(1.37)	(1.67)	(1.15)
Environmental/animal NP	1.166	1.192	1.387	1.4	0.272	0.272	0.301	0.297	**3.092+**	**2.989+**	**3.152+**	**3.328+**
	(0.23)	(0.24)	(0.52)	(0.45)	(1.50)	(1.48)	(1.28)	(1.19)	(1.68)	(1.66)	(1.93)	(1.67)
Health NP	1.169	2.202	1.222	2.775	2.558	1.559	2.838	1.965	0.826	0.801	0.829	0.864
	(0.18)	(1.12)	(0.19)	(1.33)	(1.32)	(0.62)	(1.49)	(0.91)	(0.34)	(0.38)	(0.30)	(0.23)
Education NP	1.601	**3.890+**	1.697	**3.696+**	0.678	0.815	1.103	1.253	1.812	2.148	2.538	3.088
	(0.70)	(1.89)	(0.80)	(1.80)	(0.68)	(0.31)	(0.17)	(0.33)	(1.04)	(1.12)	(1.56)	(1.54)
Public/society benefit NP	0.894	0.986	1.017	0.973	**0.374***	0.449	**0.423+**	0.474	**0.298****	**0.315***	**0.324***	**0.318***
	(0.24)	(0.03)	(0.04)	(0.05)	(2.19)	(1.56)	(1.78)	(1.35)	(2.92)	(2.50)	(2.57)	(2.53)
Religion NP	0.605	**0.500+**	0.57	0.512	**0.443***	**0.469+**	**0.432***	**0.501+**	0.561	0.562	0.515	0.595
	(1.21)	(1.65)	(1.40)	(1.57)	(2.19)	(1.92)	(2.20)	(1.70)	(1.46)	(1.37)	(1.62)	(1.26)
Mutual Benefit NP	0.607	1.058	0.695	1.448	0.336	0.617	0.453	0.885	**0.012****		**0.011****	
	(0.53)	(0.07)	(0.38)	(0.40)	(1.17)	(0.52)	(0.89)	(0.12)	(4.03)		(4.07)	
Other control variables												
Squareroot of FTEs	0.998	0.981	0.987	0.964	0.993	0.989	0.975	0.962	**0.953***	0.99	**0.948***	0.963
	(0.06)	(0.56)	(0.41)	(1.02)	(0.31)	(0.31)	(1.20)	(1.08)	(2.09)	(0.33)	(2.27)	(1.13)
Age in years	0.997	0.998	0.997	0.997	0.996	0.997	**0.994+**	0.996	0.996	0.995	0.995	0.995
	(0.72)	(0.47)	(0.91)	(0.74)	(1.40)	(0.80)	(1.71)	(1.14)	(1.20)	(1.23)	(1.42)	(1.37)
Technology score	**1.319***	**1.390****	**1.340****	**1.427****	1.164	1.141	**1.183+**	1.18	**1.286***	**1.279***	**1.390****	**1.271***
	(2.54)	(2.67)	(2.82)	(2.87)	(1.58)	(1.24)	(1.71)	(1.47)	(2.40)	(2.22)	(3.00)	(2.09)
Observations	868	752	870	715	866	752	868	715	867	745	870	709
F-statistic	2.24**	3.23**	2.57**	2.49**	2.51**	1.52	4.07**	2.29**	4.98**	3.22**	5.29**	3.10**

+ p < .10, * p < .05, ** p < .01

Notes: + p < .10, * p < .05, ** p < .01. The results are presented as odds ratios (i.e. the number e raised to the power of the logistic coefficient). Values in parentheses are the absolute values of t-statistics for the respective odds ratios.

Table 5. Logistic Regression on Impact of IORs, Resource Challenge, and Control Variables on Obtaining Selected Capacities, continued

	Recruit/retain volunteers (d)				Recruite/retain staff (e)				Recruit/retain board members (f)			
Predictor Variables	Model 5	Model 6	Model 7	Model 8	Model 5	Model 6	Model 7	Model 8	Model 5	Model 6	Model 7	Model 8
IOR Dimension												
Any formal IOR	**1.976****			1.528	**1.884+**			1.687	**2.089***			**1.783+**
	(2.59)			(1.40)	(1.75)			(1.18)	(2.40)			(1.74)
Size of IOR		**1.185+**		1.139		1.133		1.141		1.188		1.114
		(1.79)		(1.32)		(1.15)		(1.17)		(1.54)		(0.87)
Heterogeneity of IOR			**1.182+**	1.136			0.935	0.933			1.159	1.095
			(1.86)	(1.25)			(0.67)	(0.60)			(1.47)	(0.78)
A challenge to												
Recruit/retain volunteers	**2.459***	**2.508***	**2.321***	**2.704***								
	(2.51)	(2.39)	(2.32)	(2.50)								
Recruit/retain staff					**3.703****	**3.075***	**3.666****	**3.025***				
					(3.10)	(2.44)	(3.01)	(2.48)				
Recruit/retain board members									1.345	1.431	1.362	1.371
									-0.781	-0.891	-0.801	-0.778
Control variables - nonprofit field												
Arts/culture/humanities NP	2.433	**3.080+**	**3.119***	**2.898+**	**3.117***	**3.463***	**3.558***	**2.961+**	1.9	2.089	2.36	1.857
	(1.55)	(1.84)	(1.96)	(1.68)	(2.00)	(2.16)	(2.20)	(1.85)	(1.14)	(1.24)	(1.52)	(1.04)
Environmental/animal NP	1.587	1.646	1.679	1.646	0.96	1.055	0.821	1.013	**0.116***	**0.099***	**0.122***	**0.095***
	(0.60)	(0.58)	(0.64)	(0.58)	(0.03)	(0.05)	(0.17)	(0.01)	(2.41)	(2.34)	(2.36)	(2.32)
Health NP	1.408	1.634	1.43	1.759	1.32	1.351	1.335	1.215	1.424	1.422	1.439	1.521
	(0.56)	(0.78)	(0.51)	(0.83)	(0.40)	(0.40)	(0.42)	(0.26)	(0.56)	(0.49)	(0.52)	(0.57)
Education NP	0.698	0.739	0.983	0.923	1.154	1.484	1.185	1.434	1.258	1.39	1.684	1.659
	(0.57)	(0.44)	(0.03)	(0.11)	(0.22)	(0.55)	(0.26)	(0.50)	(0.32)	(0.43)	(0.77)	(0.65)
Public/society benefit NP	0.463	0.438	0.52	0.423	0.585	0.485	0.585	0.45	0.621	0.723	0.678	0.712
	(1.53)	(1.44)	(1.27)	(1.50)	(1.01)	(1.39)	(1.00)	(1.42)	(0.95)	(0.60)	(0.76)	(0.64)
Religion NP	**0.355***	**0.365***	**0.343***	**0.365***	1.031	0.91	0.884	0.924	**0.234****	**0.218***	**0.223****	**0.225***
	(2.46)	(2.23)	(2.55)	(2.21)	(0.06)	(0.17)	(0.26)	(0.14)	(2.61)	(2.40)	(2.77)	(2.35)
Mutual Benefit NP	0.485	0.525	0.45	0.673					**0.025****		**0.022****	
	(0.82)	(0.64)	(0.99)	(0.41)					(3.30)		(3.37)	
Other control variables												
Squareroot of FTEs	**0.916***	0.938	**0.913***	**0.910+**	1.006	1.059	1.006	1.047	0.951	0.986	**0.945+**	0.962
	(2.29)	(1.40)	(2.48)	(1.69)	(0.23)	(1.42)	(0.22)	(1.15)	(1.59)	(0.35)	(1.83)	(0.81)
Age in years	**1.007***	**1.007+**	**1.006+**	**1.006+**	0.998	0.996	0.997	0.996	0.999	0.998	0.999	0.998
	(2.05)	(1.70)	(1.77)	(1.67)	(0.65)	(0.78)	(0.70)	(0.81)	(0.13)	(0.35)	(0.25)	(0.42)
Technology score	1.178	1.181	**1.228+**	1.162	1.063	1.086	1.126	1.062	**1.296+**	1.207	**1.381***	1.195
	(1.41)	(1.33)	(1.78)	(1.17)	(0.41)	(0.56)	(0.83)	(0.38)	(1.84)	(1.20)	(2.24)	(1.13)
Observations	864	749	866	711	842	733	845	698	859	735	861	698
F-statistic	2.72**	1.93*	2.18*	2.06*	3.37**	2.89**	2.14*	2.78**	3.29**	2.58**	3.46**	2.38**

+ p < .10, * p < .05, ** p < .01

Notes: + p < .10, * p < .05, ** p < .01. The results are presented as odds ratios (i.e. the number e raised to the power of the logistic coefficient). Values in parentheses are the absolute values of t-statistics for the respective odds ratios.