Internal versus External Social Capital and the Success of Community Initiatives: A Case of Self-Organizing Collaborative Governance in Nepal

Most research examining the relationship between social capital and outcomes focuses on either internal social capital or external social capital. This article examines the impact of both internal and external social capital on the success of self-organizing community initiatives. A study of community water projects in a developing country, Nepal, shows that communities that enjoy less internal conflict and more external partnerships are more likely to be successful in securing agency funds for their projects. Also, communities face trade-offs between internal and external social capital. These dimensions of social capital are not perfect substitutes, and communities that maintain a strategic balance between the two maximize gains from a trade-off. Moreover, such an optimal choice is dependent on the level of internal and external social capital that these communities hold.

As social exclusion commonly leads to inequitable distribution of access and opportunities for the poor and the marginalized, inclusion of socially excluded individuals or groups in the decision-making process could be valuable in promoting social capital and thereby improving social outcomes.

Similarly, Granovetter (1995), citing an example of a rotating savings and credit group, observes that a successful group member follows a social mechanism in which she not only maintains dense ties to draw from the group but also forges ties beyond the group as needs expand. However, such concurrent analysis of internal and external social capital in explaining outcomes is largely absent for collaborative public programs.

This article examines how internal and external social capital influence communities’ success in implementing collaborative initiatives in a developing country, Nepal. Concerning internal social capital, the article specifically explores the role of internal conflict, civic engagement, and social inclusion as important features of internal social capital that are necessary for the successful organization of community initiatives. Although lower internal conflict and greater civic engagement are observed to have a positive effect on communities’ success in different policy and management settings (Ostrom 1990; Putnam, Leonardi, and Nanetti 1993), their effect on collaborative public programs is underexplored. Because the mechanisms through which these factors affect collective outcomes are complex, Putnam (2000) calls for further investigation. The effect of social inclusion on communities’ success is rather less understood. As social exclusion commonly leads to inequitable distribution of access and opportunities for the poor and the marginalized, inclusion of socially excluded individuals or groups in the decision-making process could be valuable in promoting social capital and thereby improving social outcomes.

In addition to addressing internal conflict, cultivating trust, and developing solidarity among its members, communities face trade-offs between internal and external social capital. These dimensions of social capital are not perfect substitutes, and communities that maintain a strategic balance between the two maximize gains from a trade-off. Moreover, such an optimal choice is dependent on the level of internal and external social capital that these communities hold.

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communities also mobilize external resources for the successful implementation of their projects. Studies on interorganizational collaboration underscore the importance of external resources in achieving organizational objectives. The challenges that these communities commonly confront include mobilizing information, funds, technical expertise, or political support to help them successfully plan and implement their projects. Because communities generally lack these resources, they develop partnerships with outside organizations and individuals to access these critical resources. Hence, the analytical focus is on communities’ direct, external partnerships, as these partnerships serve as the primary means of mobilizing resources and knowledge needed by the communities.1

The value of social capital is based on the notion that actors mobilize valuable resources through connections with others that otherwise would not be achievable by acting alone (Lin 2001). Social capital encompasses social trust, norms, values, and networks that help achieve individual or collective goals by facilitating coordination and cooperation between actors (Coleman 1988; Putnam 2000). Because communities are composite actors (Feiock and Scholz 2010), their relationships with outside actors constitute external social capital, whereas relationships between members within these communities are regarded as internal social capital. According to the institutional collective action (ICA) framework, composite actors engage in collaboration when they find that the benefits of collaboration exceed its costs (Feiock and Scholz 2010). Realization of these benefits requires communities not only to build internal social capital but also to search for external resources and knowledge, as organizations frequently do to stay competitive (Pfeffer and Salancik 1978).

This article is important for the literature on collaborative governance and management because it analyzes the underexplored, joint impact of internal and external social capital on communities’ success. This extends the scope of the ICA and interorganizational literature, which often overlooks the relationships internal to the composite actors that are potentially crucial in influencing outcomes. Furthermore, although a few studies highlight the need for both dimensions of social capital (e.g., Granovetter 1995; Woolcock 1998), how they interact in affecting the outcome is not well understood. This article also tests interactive relationships between the two, the findings of which could be valuable for the theory and practice of self-organizing governance in general and of collaborative public programs in particular.

The policy arena analyzed here is a collaborative water supply program. Collaborative water supply programs have emerged as an alternative to centralized water supply systems. The centralized agency supply system not only has alienated beneficiaries from decision making but also has failed to create a viable governance mechanism to sustainably address the needs of growing populations (Sabatier et al. 2005). One of the defining features of collaborative public programs is that the projects are beneficiary driven rather than merely involving beneficiaries. Interested communities take initiatives, organize projects, and submit their proposals to the program agency for funding, while the agency assists with funds to competent proposals based on pre-set criteria. Beneficiary ownership and control over the project provide incentives for communities to invest in collective initiatives (Agrawal and Ostrom 2001).

The positive impact of beneficiary participation on better project outcomes is widely acknowledged in community water supply projects across many developing countries (Isham, Narayan, and Pritchett 1995). When communities participate in collaborative programs that follow competitive funding procedures, preparation of better project proposals is essential to improving the chances of getting agency funding. This drives communities to seek support from a variety of external partners so that they have information, knowledge, expertise, and other resources necessary for developing competent project proposals. This is especially the case in a decentralized political setting in which resources and authority are dispersed across territories and organizations. The organizational and technical complexity involved in planning water supply projects further stimulates the need for mobilizing both internal and external resources. The pre-set funding criteria create accountability in the program to ensure the selection of competent project proposals. The agency gains from this delivery system because it helps maximize local initiatives, resources, and knowledge for successful execution of community projects.

Next, I discuss the impact of internal and external social capital on the success of community projects in greater detail, leading to the development of specific hypotheses. Then, I describe my research design, followed by an evaluation of the hypotheses and explanation of the results using survey data from 125 communities (settlements) in Nepal that applied for funding from the Rural Water Supply and Sanitation Program (RWSSP) in 2007. Finally, I summarize the main findings and discuss their implications in the conclusion.

Internal Social Capital and Communities’ Success

Three aspects of internal social capital that are particularly relevant in the context of this article and, therefore, considered in the analysis are internal conflict, civic engagement, and social inclusion. One of the main resources that communities typically mobilize internally for successful planning and implementation of their projects is beneficiaries’ share of the project costs. Because these costs are distributed through collective rules, an individual beneficiary’s willingness to contribute to the project depends on fair distribution of the costs and benefits among all beneficiaries and on assurance of compliance with the rules. Although these rules are crafted by the beneficiary-elect water user committee and agreed on by the beneficiaries, an individual’s contribution is likely to be affected by the level of conflict between individuals or groups over distribution rules, problems of opportunism, and control over rulemaking institutions and processes.

Conflict between individuals or groups within a community is one of the critical barriers to collective action that has been observed extensively in common-pool resource settings (e.g., Ostrom 1990; Vedeld 2000). But there is also considerable evidence suggesting that communities are able to resolve these conflicts by themselves for collective benefits (Gibson, Williams, and Ostrom 2005;
Ostrom 1990). Intracommunity trust among members or groups is pivotal for the emergence of collective action (Rothstein 2000). Because conflict undermines trust, more conflict means less likelihood of collective action. Studies show a strong correlation between the perceived legitimacy of operational rules and the degree of concurrence within communities (Sanginga, Kamugisha, and Martin 2007). Such a relationship highlights the critical importance of an individual’s trust on collective rules and on their compliance. In the case of community irrigation systems in Nepal, Ostrom and Gardner (1993) conclude that despite conflicts of interests between head-end and tail-end farmers within the irrigation system, the collectively designed and enforced rules for allocating water and maintaining the canal have been vital for the successful operation of farmer-managed irrigation systems for centuries.

Fair distribution of the costs and benefits among beneficiaries is the most contentious issue that communities face in rural water supply projects under study. As part of the communities’ obligations, their share of the project costs consists of a cash portion and a labor portion, including digging and laying the water pipes. The benefits include access to community water taps, which are expected to be fairly allocated in the community. These issues become sources of conflict because the distribution of these costs and benefits can suffer from a lack of objectivity and transparency. On the cost front, communities generally intend to adopt some variation of an ability-to-pay principle based on household wealth, usually land and cash income combined (RWSSFDB 2007). However, the subjectivity involved in the process cannot be underestimated because of the absence of recorded data on household wealth in rural settings and the usual problems of underreporting. Likewise, on the benefit side, allocation of water taps can also be a cause of conflict within communities because of strong incentives for individuals or groups to claim water taps closer to their houses.

The presence of social conflict also means dysfunctional social relations when one group or individual interacts with another group or individual with distrust and hostility (Kuenzi 2008). The individuals or groups in social positions of power can maneuver such hostility to bargain for larger benefits or to contribute less. Greater conflicts and distrust regarding the division rules may mean less mobilization of the communities’ share of the project costs from members, thereby limiting the collective effort. By implication, lower internal conflict can create opportunities for resolving differences regarding distribution rules and for building mutual trust (Zaheer, McEvily, and Perrone 1998), thereby motivating individuals to contribute their share, which is vital for communities’ success in developing better project proposals and obtaining agency funds. Hence,

Hypothesis 1: Communities with lower internal conflict are more likely to be successful in obtaining agency funds.

The potential for opportunism by individuals that is inherent in collective action situations is another barrier to mobilizing communities’ share of the project costs internally. Because of the technical intricacies involved in water supply projects, communities consisting of diverse groups or individuals divided by ethnicity or class can have different levels of information about the project. Information asymmetry can create opportunistic behavior for individuals or groups, averting the resolution of differences. In heterogeneous communities such as those in the study context, communities may have strong intragroup solidarity but can lack strong intergroup harmony (Putnam 2000). In addition, beneficiaries’ labor contribution for project-related activities, such as mobilizing members or helping technicians measure elevations and slopes for a physical profile of the project, is hard to measure. Individuals are tempted to free ride by undersupplying their efforts when they are not easily measurable (Barzel 1982).

Communities’ capacity to control free riders is essential for the emergence of collective action (Olson 1965). Controlling opportunism by creating added monitoring and sanctioning mechanisms would mean further increasing the cost of collaboration. According to Putnam, Leonard, and Nanetti (1993), a civically engaged community is instrumental in building social capital, which can cultivate community spirit and limit opportunistic behavior. By facilitating communication and coordination among individuals or groups, dense communication networks involving community members in civic organizations can develop norms of reciprocity and social trust. Such social processes are reinforced by increased opportunities for overlapping and repeated interaction provided by civic forums, which, in turn, can broaden individuals’ sense of community purpose, cultivate the habit of working together, and develop a “taste” for collective action.

Civic engagement builds positive reinforcement mechanisms such as reciprocity and trust, which can encourage individuals to contribute to the collective endeavor by controlling their opportunism (Gulati 1995). Social trust can establish the reputations of individuals, making it difficult for them to behave opportunistically because reputational damage could outweigh the gains from breaking the trust (Uzzi 1996). Moreover, a trusting environment within a community can enhance voluntary compliance with the rules. Individuals are more likely to follow the rules when they believe that others are likely to do so as well (Levi 1996; Rothstein 2000). To the extent that civic engagement minimizes opportunistic behavior and improves social trust, individuals are more likely to contribute their part for improved collective outcomes. Hence,

Hypothesis 2: Communities with greater civic engagement are more likely to be successful in obtaining agency funds.

The design of fair distribution rules and effective compliance with them also depend on how the ground rules are set. If the rulemaking process is not inclusive, then the rules are likely to be perceived as unfair by the excluded individuals or groups. Intragroup differences can generate differential access to resources and opportunities for groups because of formal and informal hierarchies of class, ethnicity, position, or power in the community. The interests of the rich and powerful may not be congruent with the needs of the poor and the marginalized (Johnson, Deshingkar, and Start 2005). Also, communities may experience exclusion across groups even if they enjoy greater intragroup social capital. Studies in the United States and internationally show that more heterogeneous societies experience less civic participation, intergroup interaction, public goods provision, and interpersonal trust because of conflicts in resource or benefit sharing and because of attitudes toward social conformity with a group (Anderson and Paskevicute 2006; Costa and Khan 2003). In rural Nepal, the lower castes are more socially excluded.
than the higher castes, and caste-based discrimination by the higher caste against the lower caste tends to be stronger at the community level (Bennett 2005).

When marginalized individuals or groups are included in community decision making, the process creates ties across individuals or groups, providing them with opportunities to interact and design rules that represent their voices. The idea of social inclusion goes beyond mere involvement of beneficiaries and constitutes structured intervention to ensure that marginalized and disadvantaged individuals or groups are included in rule-making institutions. Because rules are socially constructed, social inclusion offers opportunities to negotiate for equitable distribution rules (Bennett 2005). Socially inclusive, crosscutting intergroup ties can also contribute to social cohesion, which is conducive to collective action. Control over rule-making institutions and processes by the marginalized and the disadvantaged is considered key for these changes. When the marginalized and the disadvantaged lack or have inadequate voice in rule-making processes, the disproportionate capture of benefits such as allocation of water taps favoring the advantaged is more probable, as evidenced in siphoning off considerable forest revenues by the local elites in community managed forestry in Nepal (Iverson et al. 2006). In contrast, greater social inclusion should result in fair distribution rules, leading to greater participation of beneficiaries for better planning of their projects. Hence,

**Hypothesis 3:** Communities that are more socially inclusive are more likely to be successful in obtaining agency funds.

**External Social Capital and Communities’ Success**

As noted earlier, communities create links with various external partners to obtain a variety of resources that they lack in order to develop better project proposals. Broadly, these resources include information, matching funds, expertise, and regulatory and political support. Because different partners possess different resources, communities having multiple partners can access diverse resources, providing a comparative advantage over communities that have few partners. A community’s number of partners is equal to its degree of network activity. As building links involves an investment of time and effort, having links with many different partners is likely to be more beneficial in mobilizing diverse resources than having the same number of links with few or the same types of partners. Studies show that having wide external partnerships is an important predictor of actors’ success in diverse program settings such as educational achievements, improved implementation of economic development programs, and greater funding success of collaborative projects (Agranoff and McGuire 2003; Berardo 2009; O’Toole and Meier 2004).

Survey results show that the communities under study contacted multiple partners, including nonprofit organizations, local governments, district agencies, banks, local-level political parties, elected officials, and community-based organizations. Thus, in the context of this study, having more partners means greater ability for a community to access diverse resources from a range of partners for the development of competent project proposals that are capable of securing agency funds. Having multiple partners also means less dependence on any given partner and, therefore, greater autonomy for a community in its search for external resources.

**Hypothesis 4:** Communities with more external partners are more likely to be successful in obtaining agency funds.

Given that mobilization of internal and external social capital requires an investment of communities’ time and effort, it is plausible that the presence of high internal social capital requiring more investment means less time and effort available for these communities to mobilize external social capital, and vice versa. In this situation, the need for mobilizing both dimensions of social capital competes for the limited amount of time and effort that communities possess. As a consequence, communities are likely to be constrained in acquiring more of both. Thus, having less internal social capital would mean more ability to mobilize external social capital to compensate for the loss, implying that these two dimensions of social capital are potentially substitutes. On the other hand, communities may need more of both dimensions of social capital, or at least more of one, to maintain or increase the probability of success. As mentioned earlier, the case for the necessity of both dimensions of social capital is stressed by the social capital and community development literature, in particular, for communities’ improved well-being (Granovetter 1995; Woolcock 1998). This notion implies that communities presumably are less constrained by the time and effort needed to invest on both dimensions of social capital. In this scenario, internal and external social capital could be complementary. Both perspectives suggest the following hypothesis:

**Hypothesis 5:** Communities with more internal social capital are likely to have less external social capital, and vice versa, when investment in building both dimensions of social capital competes for limited time and effort available to the communities. Alternatively, communities are likely to experience more of both dimensions of social capital, or at least more of one, when they are less constrained by time and effort needed for building both dimensions of social capital.

**Data and Methods**

**The Study Context**

The community water supply projects in Nepal executed under the RWSSP present an excellent study setting in which to test the foregoing hypotheses. In Nepal, a country of about 28 million people, about one-third of the country’s 22 million rural people lack access to clean drinking water. Implemented with the assistance of the World Bank, the RWSSP is the major decentralized, collaborative water supply and sanitation program in the country. The Rural Water Supply and Sanitation Fund Development
Board (RWSSFDB), a quasi-public agency, provides overall management, including setting the project criteria, allocating funds, and monitoring the program. Beneficiary communities are responsible for project-level management. Agency-hired support organizations and technical consulting firms provide organizational and technical assistance to communities and monitor compliance with the project guidelines. Because the RWSSP targets rural areas, many applicant communities are from remote areas that face geographic hardships, poor socioeconomic conditions, and social deprivation.

The interested communities take the initiative to develop their projects. For each project, beneficiaries elect a water and sanitation user committee (WSUC) for day-to-day management of the project, which includes building relationships within and outside the community and ensuring that the project activities are carried out with transparency. Every project follows a sequence of planning, development, implementation, and operation and maintenance phases. Each phase generally takes 12 months to complete. One of the key outcomes of the planning phase—the focus of this study—is to produce a competent project proposal and submit it to the agency for funding. Only qualified projects that meet technical and organizational criteria are eligible for agency funding. Technical criteria include greater time savings for beneficiary households from the proposed water supply project, smaller projects, and projects from remote areas. Similarly, organizational criteria consist of arranging matching costs (cash and labor) of the project, securing an undisputed water source, meeting regulatory requirements (such as registering the WSUC), and setting up water fees for the operation and maintenance of the project. In this context, the task of the community is to mobilize and coordinate the internal and external social capital necessary for developing a competent project proposal to secure agency funding.

Data

The data were gathered from a field survey of 125 gravity-flow water supply projects from July to October of 2007 in five districts with the highest number of such projects in the Central Development Region of the country. These projects were initiated in fiscal year 2006–7 and had completed the planning phase before the field interviews. Interviewers with experience in similar field-based surveys were utilized for field interviews, which involved extensive walking—for days round trip in some cases—to reach the communities. An extensive list of funded and unfunded projects was prepared by contacting the agency and the support organizations before the field survey. For each community, the WSUC served as the respondent. The interview was conducted in a group setting in which key members of the WSUC, including the chair, secretary, and treasurer, were the key informants.

The survey asked the respondents to provide information relating to internal conflict, civic engagement, social inclusion, and links with external partners. The respondents were prompted to recall their contacts for four types of resources—information, funds, regulatory help, and political support—with the objective of generating a complete list of external partnerships. Because current contacts are easier to recall, the potential memory bias of the respondents was minimized by asking about contacts specifically for the planning phase, by reminding them about contacts, and by confirming the responses during the face-to-face interview. These contacts resulted in a network of external partnerships between communities and their partners. For analytical purposes, only binary links—the presence or absence of a partnership—were considered. The agency’s project database was used to supplement information on project attributes.

The characteristics of the projects in the sample are comparable with the characteristics of all projects in the RWSSP. The average size of the project in the study area is 745 beneficiaries, compared to 700 beneficiaries for the program as a whole. Similarly, 19 percent of all cases in the sample are located more than 20 kilometers from an urban location, as opposed to 24 percent of all cases for the program. Also, the estimated average time savings per household for the sample is 3 hours, 17 minutes, whereas it is 3 hours, 24 minutes for the program.

Variables and Estimation

Dependent variable and estimation technique. In the planning phase of the project, the communities’ main goal is to develop competent project proposals to secure funding. Securing agency funds is the critical milestone for projects in the planning phase. Only funded projects enter into the implementation and subsequent phases, where project outcomes other than funding success such as actual time savings or increased sanitation could be observed. Thus, the communities’ success in obtaining agency funds is used as the dependent variable. The dependent variable is measured as a binary variable that is coded 1 for funded communities and 0 for nonfunded communities. Of all 125 applicant communities in the analysis, 66 were funded. Accordingly, I used a logistic regression model to estimate the communities’ probability of securing agency funds. The regression uses maximum likelihood estimation to produce logistic coefficients for the model (Wooldridge 2003). The coefficients are in log odds. A positive coefficient means an increase in the community’s predicted probability of success, whereas a negative coefficient means a decline in the community’s predicted probability of success in securing agency funds. The estimated probabilities imitate the S-shaped logistic cumulative distribution function, where the probabilities change by a nonlinear function.

Independent variables. The independent variables and their descriptive and correlation statistics are reported in table 1. Internal conflict is measured on a scale from 1 to 7, where 1 means no conflict and 7 means extreme conflict within the community as perceived by the respondents. The question asked was, “What is the degree of conflict in your community?” Among all applicant communities, 60 percent reported no internal conflict, 30 percent felt some conflict, and the rest stated higher conflict. The mean internal conflict is 1.52, with a standard deviation of 0.87.

Following Putnam, Leonardi, and Nanetti (1993), civic engagement for the applicant communities is measured by the extent of their membership in local organizations. Putnam (2000) argues that enhanced community engagement in civic organizations is linked to improved social capital, which, in turn, is related to improved societal well-being. During the interviews, the WSUCs were asked to provide the number of beneficiary households that were engaged in local organizations as active members. For each community, the variable is the ratio of the sum of the number of beneficiary households that were engaged in local organizations as active members.
households reported to be involved in all local organizations to the total number of beneficiary households in the project. Hence, the variable measures the community’s aggregate rate of overlapping participation in civic organizations. When the participation rate is over 100 percent, this implies that the participating households have opportunities for frequent interaction with other beneficiaries in the community, leading to a higher level of mutual understanding and trust for collective projects. The mean rate of civic engagement is 3.29 percent, with a standard deviation of 1.64 percent.

Social inclusion is measured by the share of the marginalized and disadvantaged population among the total beneficiaries of the project. This measure represents the agency’s policy of offering such communities a 50 percent subsidy toward the matching cash portion of the project cost in order to incentivize them to embrace poor, marginalized, and disadvantaged households in their projects (RWSSFDB 2007). Although this measure is crude and does not quite capture the degree of intergroup interaction or the marginalized groups’ control over rulemaking institutions or processes, it represents the extent of generalized participation by marginalized individuals or groups in the decision-making processes. The mean social inclusion is 180.64 percent, with a standard deviation of 164.9 percent.

A community’s number of partners represents its degree of external social capital. The question asked was, “Who did you contact to meet the four challenges—information, funds, regulatory help and political support—during the planning phase of your project?” The question was repeated to remind the respondents about the local, district, regional, or national organizations and any other stakeholders that they had contacted. Thus, a community’s number of partners or degree centrality is the count of all the partners reported as contacted by the community. For each community, the number of partners is the sum of the presence of the links (1s) in each row in the partnership network of communities and their partners. The average number of partners is 6.6, with a standard deviation of 3.16.

Finally, the number of partners is multiplied by the internal conflict, civic engagement, and social inclusion variables to represent interaction between internal and external social capital (hypothesis 5). Although some overlap between the three variables related to internal social capital is expected, the low degree of correlation (<.24), as shown in table 1, indicates no serious concern for multicollinearity.

Control variables. Project characteristics and regional differences are included as controls because they can affect communities’ likelihood of funding success independent of internal and external social capital and thus can produce spurious relationships if not included in the analysis. Four regional dummy variables are included to account for regional variations in funding success. Kavre is the excluded region against which the four included regions are compared. The number of partners is included as a control, reflecting the project criteria used by the RWSSP to judge the merit of the submitted project proposals.

Time savings from the proposed water supply project, measured in estimated hours saved per household, is one of the main funding criteria. The agency considers that households utilize the saved time for individual gain, household productivity, and leisure activities that are valued when computing project benefits. The mean time savings is 3.3 hours, with a standard deviation of 1.64 hours. Remote communities also receive preferential treatment. The agency offers them a 50 percent transportation subsidy to help compensate for the high transportation costs associated with projects in remote areas (RWSSFDB 2007). A community’s remoteness is measured by its distance from a bank, usually located in towns. The mean remoteness is 15.97 kilometers, with a standard deviation of 16.35 kilometers. Finally, smaller projects are preferred over larger projects. Larger projects tend to be complex and require higher levels of organization and management skills, which generally are unavailable within the communities. The size of the project is measured by the number of beneficiaries. On average, projects have 684 beneficiaries, with a standard deviation of 427 beneficiaries.

Results and Discussion

Figure 1 shows a network graph of 125 applicant communities and their partners. The circles represent the communities, the squares indicate their partners, and the links between them represent access to various resources. The size of the circles shows the level of perceived internal conflict—that is, the greater the size of the circles, the higher the degree of perceived internal conflict. Although a distinct pattern is difficult to uncover visually, the graph indicates that funded communities, which are represented by dark circles, have comparatively lower levels of internal conflict and a greater number of external partners than their unfunded counterparts, which are represented by white circles. Because the network graph does not include the remaining social capital measures, project attributes, or geographic differences, definite conclusions about the differences between the dark and white circles cannot be made without statistical tests.

The results of the logistic regression for both the main effects and the interaction effects are reported in table 2. Both models are
significant, as indicated by the likelihood ratio test ($p \leq .01$). The interaction model explains about 43 percent of the variation in the communities’ success in obtaining agency funds, a slight increase from the main effects model, and correctly accounts for about 85 percent of the cases. The reported standard errors are Hubert-White robust standard errors, which take into account the potential similarity of network connections by the clusters of communities.¹¹

The results show that the project criteria are statistically significant. As per the policy of the program, community projects that produce greater time savings and that are smaller in size are more likely to be funded. However, against the stated policy, more distant communities are less likely to be funded. This implies that greater physical distance presents a significant barrier for remote communities in building networks with external partners because these communities require disproportionately more travel time to reach potential partners compared to their less remote counterparts. The results also indicate the presence of some degree of regional differences across the communities in their ability to obtain agency funds.

Greater physical distance presents a significant barrier for remote communities in building networks with external partners because these communities require disproportionately more travel time to reach potential partners compared to their less remote counterparts.

Regarding the effect of the variables of primary interest on communities’ success, the results suggest that higher internal conflict significantly decreases the communities’ probability of obtaining agency funds, whereas a greater number of external partnerships significantly increases the probability of getting funded, controlling for the funding criteria and regional differences. The impacts of civic engagement (hypothesis 2) and social inclusion (hypothesis 3) are not statistically significant. The significant coefficient for internal conflict in the negative direction supports the hypothesis (1) that lower internal conflict increases the communities’ chances of securing agency funds.¹² A low level of conflict within a community enhances the potential for mutual understanding and trust among beneficiaries, which is essential for creating broad-based consensus and building community solidarity for collective projects. Also, when individuals or groups have few disagreements, communities are better able to design rules that fairly distribute obligations and benefits so that beneficiaries are motivated to contribute their fair share to community projects. In community water supply projects, equitable sharing of a community’s portion of the matching costs and fair distribution of community water taps among beneficiaries are critical. The findings imply that an unfair distribution of costs and benefits among beneficiaries represents an important source of hostility that can jeopardize the collaborative potential, whereas greater consensus within a community tends to maximize the collaborative potential. Greater intracommunity consensus also means increased community capacity for preference aggregation and conflict resolution when preferences diverge among members (Feiock and Scholz 2010; Ostrom 1990).

The results also support the hypothesis (4) that more external partnerships improve communities’ likelihood of securing funding. This is indicated by the positive and statistically significant coefficient for the number of external partners. The evidence suggests that cultivating diverse partners expands opportunities for communities to search and coordinate resources needed for developing successful project proposals. This is especially the case in the context of this study, in which the applicant communities are mostly rural and lack the resources necessary to put together competitive project proposals. The evidence is consistent with a number of previous studies, noted earlier, that highlight the significance of more partners for the actors’ success (e.g., Agranoff and McGuire 2003; Lubell and Fulton 2007; O’Toole and Meier 2004).

Because internal conflict and external partnerships have an impact in opposite directions, how do they interact to affect the successes of communities in securing funding?

### Table 2. Determinants of Communities’ Success in Securing Program Funds

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<tr>
<th>Variables</th>
<th>Main Effects Model</th>
<th>Interaction Model</th>
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<td>Log Odds</td>
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<td><strong>Internal social capital measures</strong></td>
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<td>Social inclusion</td>
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<td><strong>External network capital measures</strong></td>
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<td>Internal conflict × number of partners</td>
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<td>Civic engagement × number of partners</td>
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<td>Social inclusion × number of partners</td>
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controls

Note: Hubert-White robust standard error clustered by communities; $N = 125$. ** $p \leq .01$; * $p \leq .05$; * $p \leq .1$; @ $p \leq .06$.
communities' funding success? The statistically significant and positive value for the interaction variable—inernal conflict × number of partners—suggests that expanded external partnerships improve the likelihood of funding success, even with an increase in internal conflict. This means that as internal conflict increases, communities that develop more external partnerships are likely to be better off, lifting their chances of success. Figure 2 illustrates this phenomenon: the solid curve shows the effect of an increase in one additional partner above the mean for the probability of funding. The horizontal axis represents the level of internal conflict, the vertical axis shows the probability of funding, and the dashed lines represent 95 percent confidence intervals. The solid curve, which initially rises and then almost flattens, shows that more external partners are needed to maintain or increase the likelihood of getting funded as internal conflict grows (or internal social capital declines). This implies that communities face a trade-off between internal and external social capital. Furthermore, the optimal trade-off may be different for different communities because the choices that they face are shaped by their current level of internal and external social capital.

Figure 3 demonstrates trade-off choices for three scenarios of external partnerships across the levels of internal conflict. The horizontal axis shows the level of internal conflict, which can also be understood as a declining level of internal social capital as one moves to the right on the axis. The vertical axis represents the amount of internal conflict required (or the amount of internal social capital to be sacrificed) to gain one unit of external social capital. This is approximated as the ratio of probabilities resulting from a one standard deviation increase in external partnerships over a one standard deviation increase in internal conflict. The standard deviation units are used for comparability. The three curves represent the trade-off at the minimum, mean, and maximum levels of external partners.

When internal conflict is at its minimum (or internal social capital is at its maximum), the trade-off is most advantageous at the mean level of external partnerships as opposed to when the partnership level is at the minimum or at the maximum. This is because only 0.4 unit of internal conflict is required to gain one unit of external partnership at its mean level, whereas 0.8 and 1.2 units of internal conflict will be needed to gain one unit of external partnerships at the minimum and maximum level of external partnerships, respectively. At the other extreme, when internal conflict is at its maximum (or internal social capital is at its minimum), the tradeoff is most beneficial at the maximum level of external partnerships, where a one-unit gain in external partnerships can be achieved with the least amount of internal conflict (0.1). But the same one-unit gain in external partnerships will require an increase in internal conflict by almost equal and 0.55 unit when external partnerships are at the minimum and mean levels, respectively.

In addition, the figure reveals an interesting trade-off phenomenon for communities that are situated between the two extremes of internal conflict. As the level of internal conflict rises above 3 on the horizontal axis (or internal social capital deteriorates), communities gain by increasing the number of external partners above their mean levels with the least sacrifice of internal social capital. The scenario appears more complex when internal conflict declines below this level (or internal social capital improves). Communities that have an above-average number of external partners gain by reducing the number of external partners toward the mean level by giving up the least amount of internal social capital. But for communities that maintain a below-average number of external partners, they gain by increasing the number of external partnerships toward the mean level with the least sacrifice of internal social capital. This situation—moving from the minimum number of external partners toward the mean level with comparatively less sacrifice of internal social capital—reflects complementarity between internal and external social capital for communities that possess high internal social capital in particular. This also indicates that a trade-off is always disadvantageous at the minimum level of external partnerships, irrespective of the degree of internal conflict, compared with a trade-off at the mean level of external partnerships, as the trade-off curve representing the former is always higher than the curve representing the latter.
These findings suggest that internal and external social capital are imperfect substitutes, especially when communities are at a low level of internal conflict (or at a high level of internal social capital). Even if a community enjoys no conflict at all (or maximum internal social capital), it can maximize its chances of success only by maintaining a mean level of partners rather than seeking a minimum number of partners. This remains the case for communities facing low internal conflict, as indicated by a scale of 3 or below on the horizontal axis, where the trade-off lines for maximum and mean number of partners intersect. This is particularly significant in the context of this study, in which a majority of the applicant communities fall at or below this level of internal conflict. Interestingly, beyond this intersection point, the degree of substitutability between the two forms of social capital increases as the level of internal conflict is heightened (or internal social capital declines). In this situation, communities maximize their gains by maintaining the maximum number of external partners. The evidence reveals that communities’ chances of success are increased when they strike an optimal balance between internal and external social capital and that this balancing act depends on the current level of internal conflict and on the number of external partners. In general, when internal conflict is low (or internal social capital is high), an average number of external partnerships will suffice, but when internal conflict is high (or internal social capital is low), an above-average number of partnerships is needed to maximize funding success.

Conclusions and Implications

Overall, this article showed that both internal and external social capital are essential for communities’ success in their collaborative initiatives. In the context of the community water supply projects in Nepal, the study found that communities are better off when they enjoy lower internal conflict and greater external partnerships. In particular, conflict among beneficiaries over the distribution of costs and benefits limits the potential for mobilizing their participation in the community projects, which affects their success. On the other hand, a greater number of external partnerships provides communities with the diverse resources and knowledge that are necessary for successful planning of their projects. The study also revealed that communities face a trade-off between internal and external social capital, as the loss created by internal conflict can be offset by the gain from an increase in external partnerships. Moreover, gainful trade-off depends on a community’s ability to maintain an optimal balance between the two, which, in turn, rests on the level of internal conflict and external partnerships that they currently hold. When communities face low internal conflict (or high internal social capital), they maximize gains by seeking an average number of external partners; however, when they encounter high internal conflict (or low internal social capital), they require an above-average number of external partners to maximize the gain from the trade-off.

Program managers and community leaders can also benefit from these findings. Because lower internal conflict and greater external partnerships are important for communities’ success, managers and community leaders can foster a consensual environment within communities. This is especially critical for heterogeneous communities in which segments of the population face inequitable access and opportunities to be part of the collective decision-making process. Such a process can create favorable conditions for beneficiaries to participate in, and exercise their voice in the rulemaking process (Hirschman 1970). Program managers can also organize forums for communities and potential partners for the exchange of information and the promotion of social interactions. These forums can be useful venues for people to get to know each other and to build relationships for future collaboration. The knowledge that communities face a trade-off between mobilizing internal and external social capital is also valuable, as this can help these communities make informed decisions about the optimal mix of the two in order to maximize their chances of success.

This study also faces important limitations. First, internal conflict, civic engagement, and social inclusion are proxy measures of internal social capital. Civic engagement and social inclusion, as measured by aggregate civic membership and the percentage of marginalized beneficiaries, were not found to be statistically significant. Future studies should consider better measures, such as the frequency of interaction between individuals or groups within the community. Also, instead of perceptual measures of internal conflict, objective measures such as the number of
disputes in the community should provide a better alternative (Sanginga, Kamugisha, and Martin 2007). Second, the participating communities and their partners may be involved in other projects that this study did not consider. Such multiplex relationships are not uncommon and can affect the outcomes of the study. Third, the study focused on the impact of internal and external social capital only for the planning phase. Studying their impact on subsequent phases of the projects would be useful for a better insight into collaborative behavior across all phases. Fourth, although comparability of the sample projects to the projects for the program as a whole suggests generalizability of the findings to other regions in Nepal, considerable regional variations warrant enlarging the sample size for the validation of the findings. Finally, the internal conflict analyzed in this study is a general phenomenon, and the results can be applicable to the United States and other contexts beyond Nepal. However, future work should extend to other collaborative public programs and institutional settings for generalized understanding of the self-organizing processes underlying collaborative governance.

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Notes
1. Elsewhere, I examine the impact of communities’ direct partnerships, indirect partnerships (indirect reach to other communities through partners), and cohesion among the direct partners on their success. The impact of the number of direct partners was found to be prominent (see Shrestha 2012).
2. The communities’ portion of the matching cash involves securing 2.5 percent of the construction costs and an additional 3 percent to cover the first year’s operation and maintenance costs.
3. In network terminology, a community’s network activity is called its “degree centrality” in the network of communities and their partners (Everett and Borgatti 2005).
4. I thank an anonymous reviewer who suggested exploring interactive relationships between the two dimensions of social capital, including potential substitutability and complementarity between the two.
5. The selected districts are Kavre, Sindhupalchowk, Makwanpur, Sindhuli, and Dhading. Gravity-flow water supply projects are the most common projects in the Central Development Region and for the program as a whole. These projects account for 83.1 percent of the total projects in the region and 90.5 percent for the program as a whole.
6. All interviewers had prior experience in working with the RWSSP-funded surveys. They also received two and a half days of pre-training, one day of pre-testing, and one and a half days of post-training specific to the survey instruments. The questionnaire was translated into the Nepali language to obtain a better response rate and to minimize communication and recording errors.
7. Technically, this type of network consisting of two sets of actors—in this case, communities and organizational partners—is called a two-mode network, where links are between communities in “rows” and organizations in “columns” (Wasserman and Faust 1994).
8. The ethnic groups that have been traditionally excluded from the mainstream socioeconomic and political developments are officially designated as marginalized and disadvantaged population groups in Nepal. The beneficiary data gathered by ethnicity served as the basis for the calculation of the social exclusion variable.
9. The network graph was drawn using UCINET’s spring embedding layout, which puts equidistance nodes (communities and partners) together but avoids clumps for better visualization (Borgatti, Everett, and Freeman 2002).
10. Separate models were also run for civic engagement and social inclusion variables with and without corresponding interaction terms with external partnerships. Neither the main effects nor the interaction effects were statistically significant and different from the reported results indicating the absence of multicollinearity.
11. UCINET’s hierarchical clustering procedure was performed on the community association matrix to produce the number of community clusters based on the similarity of connections. The procedure resulted in the numbers of clusters varying from 30 to 45. When estimating the regression models, I used 37 clusters, a midpoint, to account for the similarity of connections by the clusters of communities.
12. Because of the skewed distribution of the internal conflict variable, I also reran the model with a dichotomized variable for which 4 (on a scale of 1 to 7) was used as the cutoff point, below which the responses were coded 0 (meaning low conflict) and above which the responses were coded 1 (meaning high conflict). The results were similar to the reported results.

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