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Diagnosing Participation and Inclusion in Collective Decision-Making in the Commons: Lessons from Ecuador

RESEARCH ARTICLE

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ABSTRACT

The objectives of our study are to advance our understanding of the micro-level governance conditions that facilitate more inclusive communal decision-making processes. Common-pool resource scholars frequently point to participatory governance arrangements as critical for successful resource management. Recognizing local decision-making rights, however, does not necessarily ensure that the decision process or management outcomes will be inclusive or equitable. Examples from decentralized and community-based resource management illustrate how communities and outside organizations alike can struggle to create decision-making forums that include and recognize the voices of more marginalized members. Our exploratory analysis examines household participation (n = 491) in communal decisions in twelve rural indigenous communities in the central Andes of Ecuador. We use the Institutional Analysis and Development (IAD) framework to structure a set of logit models to identify the household attributes and community governance conditions that make it more likely that a household engages in community meetings (attends, voices opinions, perceives opinion is respected), and agrees with the collective decisions. Our findings reiterate the challenge of gaining full participation, particularly from women, and indicate how local governance characteristics such as frequency of meetings and leader training may promote greater inclusion and overall agreement with communal decisions.

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1. INTRODUCTION

Over the past decades, practitioners and policymakers have increasingly heeded calls for greater local involvement in natural resource management via a range of decentralized and community-based resource management arrangements (Alcorn, 2005; Andersson & Ostrom, 2008; Larson & Soto, 2008; Western & Wright, 1994). A rich body of scholarship suggests that when local and indigenous communities participate in resource management processes, the resultant rules and programs are more likely to be tailored to local conditions, participants are more motivated to conserve their ecological systems, and conservation practices are more likely to be sustained over time (Berkes & Folke, 1998; Chambers, 2014; Cox, Arnold, & Tomas, 2010; DeCaro & Stokes, 2013; Engle & Lemos, 2010; Mcleod et al., 2016; Ostrom, 1990). Participatory processes are also considered fundamental for environmental governance that is equitable and just (Gupta, Pouw, & Ros-tonen, 2015; Lockwood et al., 2010).

Crafting participatory forums, however, is not easy. Communities and outside organizations alike often struggle to create decision-making processes that recognize the diverse interests of their constituents (Agrawal & Gibson, 1999; Cooke & Kothari, 2001). While there are many examples of successful local resource management arrangements (Coleman, 2009; Gibson, McKean, & Ostrom, 2000; Hayes & Ostrom, 2005; Ostrom, 1990), studies also point to cases where the poor, women, or other marginalized community members have been excluded from communal decisions and have borne more of the costs and received fewer benefits from decentralized or community-based programs (Agrawal & Gibson, 1999; Baland & Platteau, 1999; Chaffin et al., 2014; Cooke & Kothari, 2001; Mwambi, Bijman, & Mshenga, 2020).

Those working to promote common-pool resource management and sustainable development are thus often left with the unenviable challenge of how to partner with communities. On the one hand, researchers point to how participatory decision-making can further just and effective resource management (Coleman, 2009; Hayes & Ostrom, 2005; Lockwood et al., 2010; Mcleod et al., 2016; Persha, Agrawal, & Chhatre, 2011), and on the other, caution that those same decision-making processes may further inequities within a community (Agrawal & Gibson, 1999; Cooke & Kothari, 2001).

The objectives of our analysis are to advance our understanding of how external organizations or community leaders themselves might facilitate more inclusive decision-making that garners broader collective agreement. Recent studies point to local governance attributes that may influence inclusivity and accountability in communal decision-making processes (Agarwal, 2010; Coleman & Mwangi, 2013; Persha & Andersson, 2014; Saito-Jensen, Nathan, & Treue, 2010; Theesfeld et al., 2017). For example, Theesfeld and colleagues (2017) examine how small changes in rule arrangements regarding entry and exclusion, information, and aggregation can influence different levels of participation in community development and planning committees in Thailand. Likewise, attributes such as the gender, experience and training of the leaders, and oversight from external organizations may also provide micro-level opportunities to enhance inclusion and equity in communal decision processes (Coleman & Mwangi, 2013; Mwambi et al., 2020; Persha & Andersson, 2014; Theesfeld et al., 2017).

Here, we build on this work by using the Institutional Analysis and Development (IAD) framework to assess how households engage in communal decision-making forums and identify if a set of relatively malleable governance elements, namely leader attributes and micro-governance institutions, increases household inclusion and agreement with collective decisions in rural communities in Ecuador. Our study examines household participation in decision-making forums in twelve rural Quichua indigenous communities in the central Andes, Ecuador. We chose to study these communities as all collectively manage their lands and regularly engage in communal decision-making processes to decide on resource management activities and rules, budgetary priorities, participation in sustainable development projects, and other governance concerns. Not all community members, however, are necessarily in agreement with the collective decisions. Previous research found varying levels of agreement with some of the resource management and budgetary decisions, highlighting the need to better understand participation and agreement with collective decision-making processes more broadly (Hayes & Murtinho, 2018; Hayes et al., 2017).

We use quantitative methods to parse how households (n = 491) engage in community meetings and identify the household attributes and community governance conditions that make it more likely that a household participates and agrees with the communal decisions. Our findings reiterate the link between participation, perceived respect, and agreement with the collective decisions and the challenge of gaining full participation, particularly from women, in the communal decision-processes. Results also indicate how local governance characteristics such rules requiring more frequent gatherings and leader training may promote greater inclusion and overall agreement with communal decisions.

In the following, we introduce the governance context for communities in the Andes and then lay out our conceptual model, describe our methods, and present the findings with respect to individual, household and communal elements that influence participation and agreement with collective decisions.

2. CASE STUDY CONTEXT

2.1. COMMUNITY GOVERNANCE IN ECUADOR

In Ecuador, Indigenous and local communities have a rich history of collectively managing their resource systems and making decisions about communal affairs (Korovkin 2001, 2002). While the path for greater local autonomy is complex, and often inconsistent (Bretón et al., 2022), legal recognition of the community (*comuna*) as a governance unit was established in 1937 under Ecuador's "Law of the Communes" that incorporated indigenous and local communities into the national administrative structure, while also providing a degree of self-governance autonomy for the communities (Rayner 2017). Communal rights were further supported by the 1998 Constitution (Article 57, article 171) and a related law (Ley de Organización y Régimen de las Comunas, 2004) that defined the current governance authority and structure of the communities. While the most recent 2008 Constitution recognizes the role of the comunas in a plurinational country and emphasizes the importance of participatory processes; this has not resulted in changes to the organizational structure or specific decision-making rights assigned to the comunas (Ramírez and Welp 2011; Rayner 2017; see Radhuber and Radcliffe 2022 for a critique).

Previous research illustrates the ability of Andean communities to act collectively to manage their lands and common-pool resource systems, promote community development, and advocate for their socio-economic and political rights, in addition to other governance concerns (Korovkin 2001, 2002; Van Cott 2006; Bebbington 1997; Hoogesteger 2013; Rayner 2017; López-Sandoval and Maldonado 2019). Studies point to how communal attributes such as social capital can influence the ability of rural Andean communities to work toward their conservation and development goals, and the ambiguous influence of outside organizations (Bebbington 1997; Bretón Solo De Zaldívar, 2015; Hoogesteger 2013, 2015; López-Sandoval and Maldonado 2019; Schmitt 2010). Yet, while we have substantial evidence of the ability of Andean communities to act collectively, we have less information about who is included in these decision-making processes and the extent to which community members agree with the decisions that are enacted (Radcliffe 2014; Valdivia et al. 2013).

2.2. CASE STUDY COMMUNITIES

Our twelve study communities are Quichua indigenous communities located in the Central Andean region (see Figure 1).[1] The communities were established in the 1960s and 1970s as various stages of Ecuador's Agricultural Revolution broke up large haciendas and permitted indigenous and mestizo (of mixed Spanish and indigenous descent) laborers to purchase lands communally (Bretón et al., 2022; Korovkin, 2002). Today, residents collectively manage their lands, dedicating lower lands for agriculture and the higher lands for extensive grazing of sheep and cattle, hunting, housing materials, fuel, watershed conservation, and medicinal uses (Albán & Argüello, 2004; Hofstede, 2001).

Our study communities range in size from 17 to 450 households. All communities are located approximately one hour from an urban center; however, few households (13%) depend principally on off-farm sources of income (e.g. working in services and construction in nearby cities). Rather, the majority depend on small-scale agriculture (potatoes, fava beans, carrots, etc.) and dairy for their livelihoods and roughly 90% of the rural population in the region is unable to meet its basic needs (INEC, 2013).

Our analysis focuses on household participation in community meetings. Across the Andes, rural communities gather in formal meetings to discuss and decide on important community issues that range from resource management rules to budgetary priorities and community development initiatives (Ley de Organización y Régimen de las Comunas, 2004; Schmitt 2010). Although the frequency of meetings may vary, our case study communities held at least 4 community meetings per year. All households are expected to send at least one member to participate in the meetings, and, in 11 of the 12 communities, households are fined for non-attendance. Communal decisions in all study communities are made by a mix of communal consensus and voting. While all adult residents are permitted to voice their opinions and concerns, generally only one head-of-household (either man or woman) is permitted to vote.

In each community, an elected set of leaders, hereafter referred to as the "executive committee" oversees the frequency and agenda of the communal meetings (Korovkin, 2002). Per law (Ley de organización y Régimen de las Comunas, 2004), in addition to holding communal meetings, the executive committee represents each community in all external relations with governmental and non-governmental organizations and is charged with governing the day-to-day activities in the community.

In our study communities, presidential turnover was fairly frequent; all communities had elected two-three new presidents over a three-year period, although the overall makeup of the executive committees often remained fairly stable with members rotating through different positions. Most executive committee members were between 30–60 years old and in half of the communities, at least one member had finished high school. Half had at least one woman in an elected position, and seven of the twelve

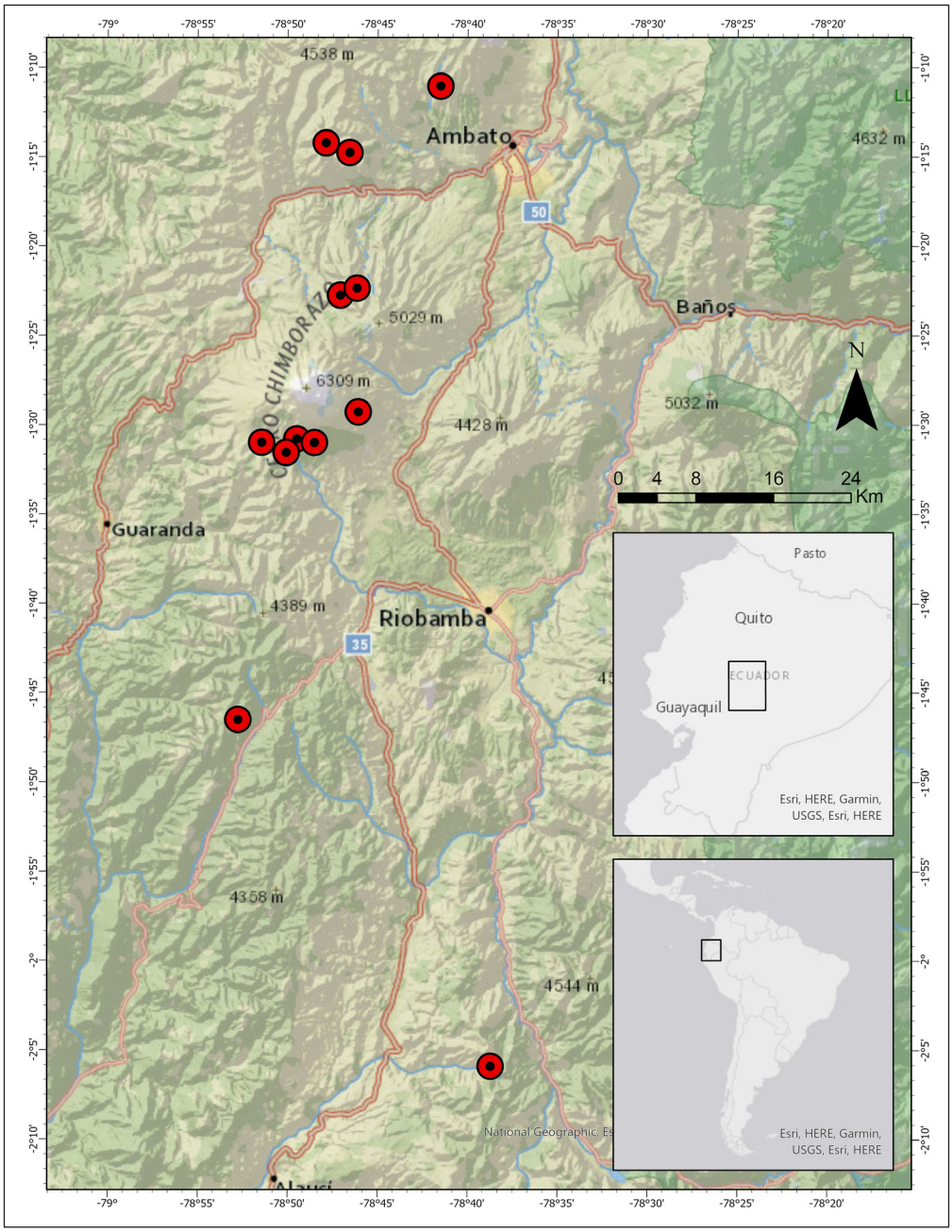

Figure 1 Case study location.

committees had received leadership training, most often from the local government (municipality or province). While such trainings varied, they often include information on budget and project management, accountability to constituents, and transparency in decision-making.

Previous research suggests that external organizations can influence communal governance dynamics (Cooke & Kothari, 2001; Saito-Jensen, Nathan, & Treue, 2010; Bretón Solo De Zaldívar, 2015). All study communities had worked with at least one external organization on community development and/or conservation projects.[2] The most prominent project at the time of our study was the Socio Páramo payment for conservation project that paid communities to conserve their collective lands.[3] All communities had expressed an interest in joining the governmental Socio Páramo payment for conservation project, although only seven of the communities were participating at the time of our study. While communal decision-making is important in the decision to join the program, craft resource management rules, and decide how to distribute the economic payments, the program does not work directly with communities in their decision processes. Nonetheless, it is important to consider its potential influence on collective decision-making processes.

3. CONCEPTUAL FRAMEWORK

Common-pool resource management scholars have often used the IAD framework to examine how resource users' rulemaking rights influences common-pool resource management outputs, namely the creation of rules, monitoring, and enforcement mechanisms, and the sustained conservation outcomes of the resource system (Coleman, 2009; Cox et al., 2010; Gibson, McKean, & Ostrom, 2000; Persha et al., 2011; Ostrom, 1990). More recently, scholars and practitioners have encouraged greater attention to the internal dynamics of participation in collective resource management processes, with equity and inclusion as goals in themselves (Friedman et al., 2018; Gupta et al., 2015).

Here, we use the IAD framework to systematically examine the internal dynamics of who is involved in communal decision-making processes and the micro-institutions that influence inclusion and agreement in said processes (Theesfeld et al., 2017). At the core of the IAD framework is the action situation; the social spaces where individuals and organizations interact, engage in discussions, make rules, mediate conflicts, exchange goods, and fight (amongst other interactions) (Ostrom, 2011). In our analysis, community meetings are the action situation of interest as they are important forums for civic engagement and decision-making (Schmitt 2010). As shown in Figure 2, we apply the IAD framework to identify the individual, household and communal governance factors that influence how a community member interacts in the communal meetings and their agreement with said outcomes.

3.1. INTERACTIONS AND OUTCOMES: ASSESSING PARTICIPATION AND AGREEMENT

In considering who makes decisions, many caution against assuming that attendance in decision-making forums signals meaningful participation as even when invited to participate, some participants may be reluctant to do so because they do not feel welcome, do not perceive that their opinions are respected, or feel they will not influence the final collective decisions (Agarwal, 2001; Cooke & Kothari, 2001; Lund & Saito-Jensen, 2013). Agarwal's work (2001) on women's participation in natural resource management offers a tiered approach to assessing participation that ranges from simple group membership and passive participation to active participation in which a participant expresses opinions, and ultimately, interactive participation in which a participant not only voices an opinion, but also influences the group's decision (Agarwal, 2001).

In our assessment of participation in communal meetings, we draw from Agarwal's typology (2001) to first consider how a community member *interacts (or "participates")*, and then, whether they agree with the *decision outcome* in these meetings. Specifically, our analysis examines whether a member *i)* regularly attends communal assembly meetings, *ii)* actively participates by voicing their opinions in the meetings, *iii)* perceives that their opinions are respected in the communal discussions, and ultimately, *v)* agrees with the governing bodies' decisions.

Based on previous work on participation in decision-making (Colquitt, Conlon, Wesson, Porter, & Ng, 2001; DeCaro & Stokes, 2013; Frey, Benz, & Stutzer, 2004), we expect that our three measures of "participation"

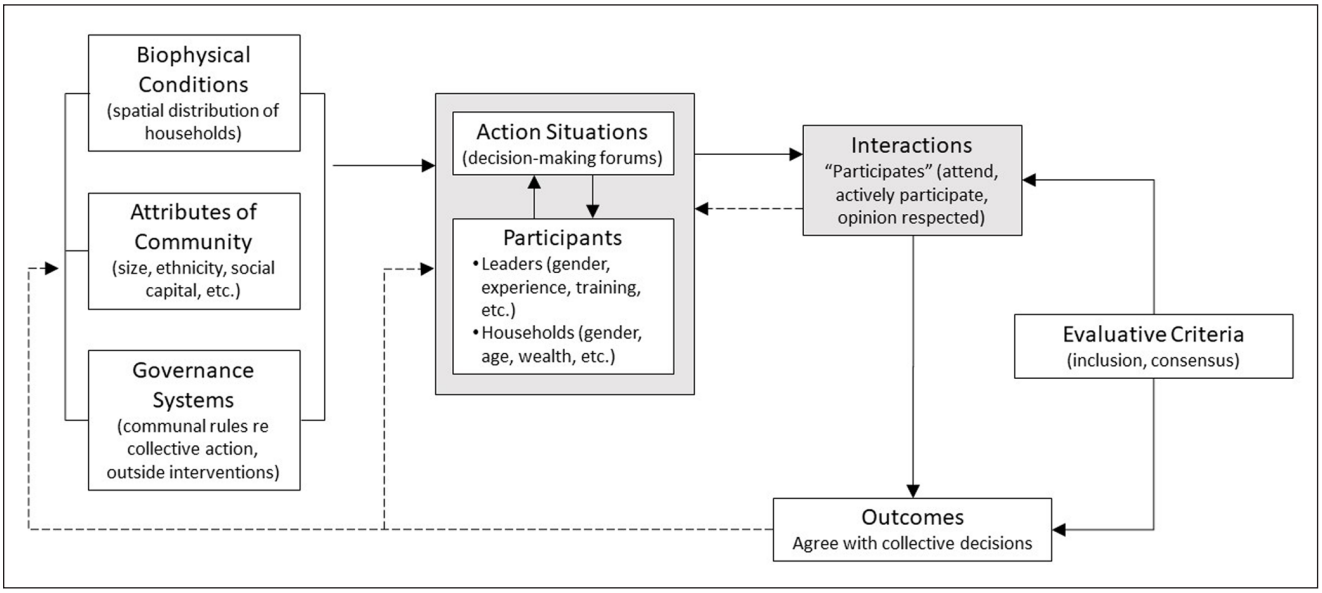

Figure 2 Conceptual framework (adopted from Ostrom 2011).

(attendance, active participation, and perceived respect) will be positively associated with agreement with the governing bodies' decisions. Likewise, we expect that household attendance, active participation, perceived respect, and agreement with decisions will be influenced by household and community attributes, leadership characteristics, and micro-level governance conditions.

3.2. PARTICIPANTS: HOUSEHOLDS AND THEIR RESPECTIVE COMMUNITY CHARACTERISTICS

At the household level, research indicates that poorer, less educated, women, and other marginalized groups may be left out of decision-processes (Agarwal, 2010; Coleman & Mwangi, 2013; Lund & Saito-Jensen, 2013; Mwambi et al., 2020; Mwangi, Meinzen-Dick, & Sun, 2011). In the Andes, women are traditionally involved in day-to-day resource use and management, yet it is questionable the degree to which they are included in formal decision-making processes (Valdivia & Gilles, 2001; Valdivia, Gilles, & Turin, 2013). Likewise, within the broader community context, previous research suggests community size, heterogeneity, trust, and geographic location may influence the ability of households to come together to address collective action problems (Agrawal, 2007; Gibson et al., 2000; Poteete & Ostrom, 2004).

In our analysis, we expect that women will be less likely to participate in and agree with community decisions. We also consider the influence of education, age, livelihood source (off-farm income), and household wealth. We expect that those that live farther from the community center and those living in larger communities will participate less in community meetings.

3.3. ATTRIBUTES OF LEADERS

Research on leadership in common-pool resource management suggests that leader attributes such as gender, education, experience, and training, in addition to more qualitative characteristics such as charisma and altruism can influence inclusion, participation and collective agreement in decision-making venues (Andersson, Chang, & Molina-Garzón, 2020; Engle & Lemos, 2010; Gutiérrez, Hilborn, & Defeo, 2011; Molinas, 1998). Here, we are interested in leadership attributes that can be altered, specifically the gender composition of the leadership committee and leadership training. Based on previous research, we expect that a greater presence of women in leadership positions, and training in broader leadership skills will support more inclusive and collaborative decision-making processes (Agarwal, 2010; Coleman & Mwangi, 2013; Engle & Lemos, 2010; Gutiérrez et al., 2011; Molinas, 1998).

3.4. COMMUNITY-LEVEL GOVERNANCE INSTITUTIONS

Within communities, micro-institutions such as rules about how and when communities will meet, who may, may not, or must attend, information provided, and how individual preferences are aggregated and collective decisions are made influence inclusion in the decision-making process (Ostrom, 2005; Theesfeld et al., 2017). In our study, communities are largely homogenous in their rules regulating who may attend and participate in decision-making, and the rules for aggregating individual preferences (see description in methods). Communities do vary, however, in how they organize opportunities for civic engagement, e.g., the number of times they hold participatory forums (meetings and work parties), and to a lesser extent, their sanctions for non-attendance (Schmitt, 2010). We predict that organization for civic engagement will positively influence attendance at community meetings, and in turn, overall agreement with the decisions made by the governing body (Berkes, Folke, & Colding, 1998; Ostrom, 1990).

3.5. ROLE OF EXTERNAL ACTORS

Lastly, our study explores how the presence of an external organization influences participation in communal decision-making. The findings on the role of external agents in fostering more inclusive decision-making is mixed (Classen et al., 2008; Bretón Solo De Zaldívar, 2015; Cox et al., 2010; Lund & Saito-Jensen, 2013; Molinas, 1998; Ostrom, 1990; Persha & Andersson, 2014). In our study, the PES program Socio Páramo has been the principal organization working in the region to support resource management via collective payment for conservation contracts. It is uncertain the degree to how it will influence decision-making processes, if at all.

4. METHODS AND DATA

4.1. DATA GATHERING

Data used in this analysis includes information from a questionnaire administered to members of the executive committee, and a household questionnaire. In each case study community, we interviewed at least two members of the executive committee. Interview protocols included a structured set of questions that asked about the training of committee members, governance rules, arrangements for making collective agreements, resident participation in these decisions, and the ease of coming to collective agreements.

To assess participation and agreement in community meetings, we administered a household questionnaire in each community.[4] In the smaller communities (n < 50), we administered the questionnaire to a minimum of 50 percent of the households, in the larger communities, we interviewed a minimum of 10 percent of the households (see Table 1). In total, we interviewed 491 households. Inside each community, households were selected based on a sampling process that worked with community leaders to map out the location of the households as houses in highland communities are often dispersed in clusters. To ensure a geographically representative sample, a relative percent of households from within each cluster of houses were randomly selected to be interviewed. At each selected house, we asked to speak with a head-of-household (could be either a man or woman) who could respond to questions about land-use, livelihoods, and their perspectives on their participation in communal governance activities (50% of the respondents were women).[5]

All data was gathered in 2018 and approved by our respective Institutional Review Board. The questionnaire was orally administered by trained local interviewers with expertise in highland communities. Interviewers were instructed to clearly state that all interviewee responses were voluntary and confidential. Interviews were conducted in Spanish and included closed and open-ended questions about the activities of the household including land-use practices and livelihoods, and participation in governance activities. As Spanish is the second language for some of the respondents, particularly elderly women, an interpreter was available if needed. We recognize, however, there is the potential for some of the responses to be limited due to language barriers.

COMMUNITY ID	A	B	C	D	E	F	G	H	I	J	K	L
Dependent variables												
Attendance (% high)	62.5	100.0	63.1	97.0	100.0	51.5	81.3	38.9	95.6	54.5	80.3	50.0
Active participation (% active)	69.2	53.8	25.8	62.1	56.3	40.3	68.8	51.4	37.7	31.8	53.7	60.0
Opinion respected (% yes)	60.0	76.9	35.9	30.8	50.0	31.6	68.8	32.4	26.6	27.3	50.7	55.0
Agree with exec. committee (% yes)	57.7	84.6	63.1	51.5	68.8	60.0	100.0	37.8	53.6	31.8	61.2	40.0
Individual/household attributes												
Gender (% women)	69.2	46.2	66.2	50.7	62.5	55.1	50.0	73.7	49.3	72.7	52.9	60.0
Age (average)	48.0	47.9	41.8	47.6	55.5	49.3	43.4	52.2	40.9	48.1	45.7	44.9
Education (% 7 years or more)	37.5	23.1	25.4	29.9	25.0	20.6	25.0	21.1	22.1	18.2	14.7	40.0
Off-farm income (%)	23.1	7.7	11.9	7.5	18.8	30.4	25.0	7.9	5.8	4.5	7.4	5.0
Wealth index	0.27	−0.94	0.11	0.49	0.26	0.07	−0.22	−0.08	0.08	−0.06	−0.31	−1.04
Community sector (% high)	11.5	0.0	44.1	10.4	0.0	42.2	0.0	0.0	27.5	0.0	48.5	57.9
Community/Governance attributes												
Community size	48	17	179	120	30	450	26	45	417	33	216	31
Organization index	−0.17	1.36	−1.02	3.38	0.33	−0.34	0.33	0.68	1.29	−0.11	−0.56	0.68
–Assemblies (#/year)	6	12	4	48	12	6	12	4	24	4	4	4
–Work Parties-Mingas (#/year)	12	48	24	12	12	6	12	48	10	20	4	48
–Monetary sanction for not attending assemblies	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Women in executive committee (%)	0	0	20	0	0	40	40	60	20	0	0	22
Leadership training	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	Yes
PES Program participant	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	Yes
HH interviewed	26	13	68	67	16	69	16	38	69	22	68	20
% interviewed	54	76	38	56	53	15	62	84	17	67	31	65

Table 1 Descriptive statistics of data use in statistical analyses (by community).[6]

4.2. VARIABLES

Table 1 shows the descriptive statistics for our dependent variables and the independent variables at the household and communal level used in our logit models (see appendix A, table A.1 for a description of each variable and its measurement, and table A.2 for correlations). To assess household participation in community meetings, we asked a head-of-household questions about when they attend community meetings, the degree to which their household expresses their opinions in discussions (hereafter referred to as 'active participation'), and whether they perceive that their opinions are respected in the meetings. Separately, to measure attendance, we asked the number of community meetings a household had missed in the past year. All participation variables were transformed to dummy variables in which 1 indicates active participation, perception that opinion is respected, and frequent attendance (missed less than 20% of assemblies). To assess agreement with the collective decisions, we asked the respondent whether they generally agreed with the decisions made by the executive committee (a 1 indicates agreement).

At the community level, our organization index (built using Principal Component Analysis, see appendix A, table A.1) is a proxy to assess the opportunities and rule requirements for attending community gatherings. It is based on the work of Schmitt (2010) to assess civic engagement in communities in the Andes, Ecuador. It consists of the number of community meetings, and communal work parties (*mingas*) a community holds per year, and considers whether the community had sanctions for failure to attend a meeting. Women leadership is measured as the percent of members of the executive committee that were women. Our leadership training and PES program variables are both dummy variables where '1' indicates presence of training and participation in the PSP program, respectively.

4.3. ANALYSIS

Our analysis is divided into three sections. First, we examine if the different forms of participation (attendance, voice opinions, and perceived respect) are associated with overall agreement with community decisions. Due to potential endogeneity concerns across the participation indicators and agreement with the executive committee decisions, we use bivariate logit models to test for associations. To account for community-level peer effects we cluster our error term at the community level.

Second, we construct a series of logit models to test if household and community governance attributes influence attendance at community meetings, active participation, opinion respected, and agreement with executive committee decisions. For each outcome we run two models. First, we present the model with only the household attributes, controlling for community size. Second, we include community governance factors, controlling for whether the community was participating in the PES program (PSP). In addition, we run a set of robustness checks to test the sensitivity of our attendance outcome to different levels of measurement, and to verify that no single community is driving the results (see Appendix B). Results are qualitatively similar to those presented in Tables 2 and 3.

Lastly, we assess if specific leadership attributes can increase the likelihood of inclusion of women in the community decision-making processes (Agarwal, 2010; Coleman & Mwangi, 2013; Molinas, 1998). We test for the interaction effects that the proportion of women in the governance committee and leadership training have on women's participation and agreement with the communal decisions.

4.4. STUDY LIMITATIONS

We recognize several study limitations in our exploratory analysis. First, the study's generalizability is limited given the focus on a small number of indigenous communities in the highlands of Ecuador that are relatively homogeneous with respect to ethnicity, livelihoods, and governance structures. Second, in our study communities, participation in community meetings was generally expected at the household, not individual, level. Thus, many survey questions ask the respondent to speak of their perceptions of household, not necessarily individual behavior in communal meetings. Individuals speaking on behalf of the household may obfuscate some potential differences within households. Finally, our quantitative indicators lack depth in understanding how individuals interact in the community decision-making forums and the power relations within (Arnstein, 1969; Cooke & Kothari, 2001). Our questions were not aimed at specific issues, but rather attempted to gain an understanding of perceptions of participation and agreement in communal issues, more broadly. Furthermore, our analysis is limited to formal decision-making forums and does not account for informal venues in which community members may be influencing decisions. We encourage future analyses to explore perceptions of participation within households, internal power dynamics, in addition to participation in informal decision-making venues.

5. FINDINGS

5.1. PARTICIPATION AND AGREEMENT ACROSS HOUSEHOLDS AND COMMUNITIES

Our results indicate how levels of household engagement in community meetings differ across communities and the

relationship between forms of participation and greater agreement with the executive committee decisions. Figure 3 shows the relations between the different levels of participation and household agreement with the decisions made by the executive committee. In the communities, agreement ranged from 32% to 100%; on average, 57% of households agreed with their respective executive committee's decisions. Likewise, while on average 73% of all households regularly attended community meetings, in one community, only 39% of the households regularly attended community meetings whereas 100% attended in others. We find similar variations in whether a household actively participates, and whether a household perceives that their opinion is respected in assembly meeting discussions (see Figure 3).

Bivariate logit results (see appendix A, table A.5) suggest that agreement is significantly associated with household attendance at community assembly meetings as well as with perception that one's opinion is respected. There is no significant association between agreement and active participation in assembly meetings.

In response to an open-ended question that asked why a respondent agreed or disagreed with the leadership decisions, respondents' rationales focused on whether the leaders responded to community needs, leaders' abilities to organize themselves and the community, and their ability to communicate well with the community. Those that criticized the decisions cited lack of benefits to them or their community, failure to communicate, and concerns about transparency.

5.2. HOUSEHOLD AND COMMUNITY ATTRIBUTES INFLUENCE PARTICIPATION AND AGREEMENT

The variation in household participation and agreement across communities raises the question of how responses vary by household attributes, as well as if there are community governance conditions that make it more likely that a household will participate in community meetings and agree with the executive committees' decisions. Table 2 shows the results from the logit models to assess attendance, active participation, perception that opinion is respected, and agreement with executive

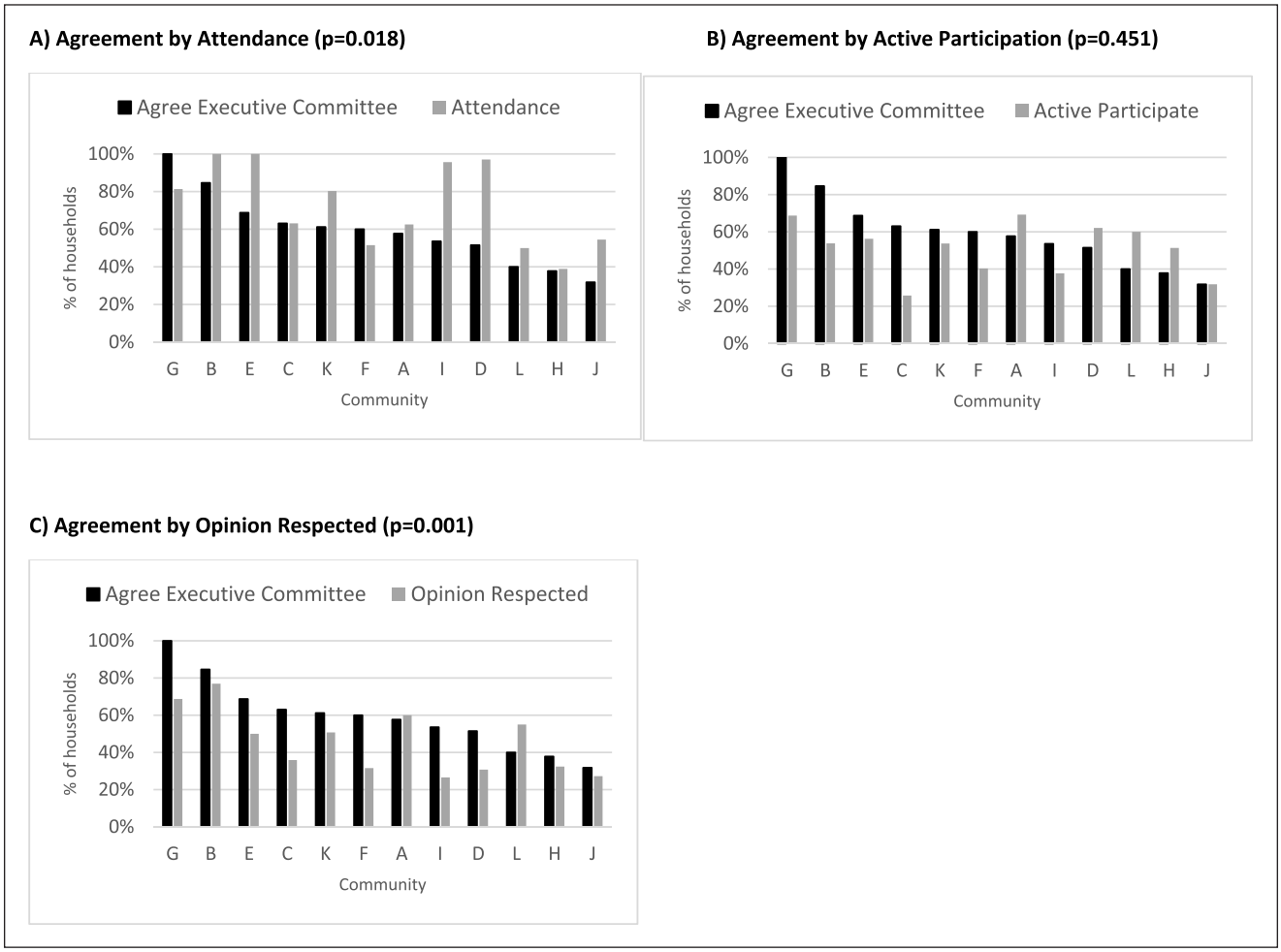

Figure 3 Household agreement and participation variables by community.[7]

VARIABLES	ATTENDANCE		ACTIVE PARTICIPATION		OPINION RESPECTED		AGREE WITH EXEC. COMMITTEE	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Gender = 1, Woman	−0.510**	−0.232	−0.591***	−0.606***	−0.461**	−0.537**	−0.404***	−0.419**
	(0.246)	(0.210)	(0.178)	(0.190)	(0.199)	(0.248)	(0.145)	(0.177)
Age	−0.010	0.004	0.009	0.006	0.019*	0.018*	−0.023***	−0.021*
	(0.011)	(0.008)	(0.009)	(0.009)	(0.011)	(0.011)	(0.009)	(0.011)
Education = 1, 7 years or more	−0.196	−0.146	0.266	0.101	0.518*	0.412	−0.563**	−0.602**
	(0.256)	(0.244)	(0.193)	(0.229)	(0.276)	(0.254)	(0.251)	(0.288)
Off-farm income = 1, Yes	−0.790**	−0.302	0.580*	0.880***	0.163	0.262	0.127	0.106
	(0.359)	(0.260)	(0.307)	(0.331)	(0.308)	(0.284)	(0.364)	(0.387)
Wealth index	0.190	0.162**	−0.057	−0.078	0.013	0.070	0.066	0.074
	(0.122)	(0.083)	(0.111)	(0.079)	(0.096)	(0.092)	(0.125)	(0.135)
Community sector = 1, High	0.025	0.298	0.346	0.745**	0.776***	0.988***	0.467*	0.457*
	(0.427)	(0.549)	(0.351)	(0.322)	(0.252)	(0.198)	(0.254)	(0.267)
Community size		0.006***		−0.003***		−0.002**		0.001
		(0.001)		(0.001)		(0.001)		(0.001)
Organization index		0.702***		0.250***		−0.129		−0.112
		(0.128)		(0.090)		(0.097)		(0.073)
Women in executive committee		−3.045***		−0.343		−0.362		0.335
		(0.459)		(0.582)		(0.555)		(0.726)
Leadership training = 1, Yes		1.843***		−0.286		0.464		0.999
		(0.229)		(0.645)		(0.545)		(0.784)
PES Program = 1, SB		−1.520***		−0.022		−0.440		−0.405
		(0.299)		(0.427)		(0.386)		(0.606)
Constant	1.915**	0.458	−0.398	0.202	−1.378**	−0.827	1.566***	1.083
	(0.796)	(0.469)	(0.590)	(0.714)	(0.574)	(0.563)	(0.411)	(0.680)
Observations	474	474	473	473	459	459	474	474
McFadden's Pseudo R2	0.0235	0.190	0.0320	0.0685	0.0424	0.0741	0.0321	0.0449
Overall correct predictions (%)	73.21	75.74	61.73	63.42	63.40	65.36	60.13	62.66
AIC								

Table 2 Logit models for participation and agreement with executive committee.
Robust standard errors in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1.

committee decisions. The results indicate that individual and household attributes, namely gender, influences participation in community meetings and agreement with the collective decisions, and point to community governance attributes that may facilitate greater participation and inclusion.

At the household level, while gender is not significant for attendance once other governance variables are included, it is significant for all other outcomes. Women are less likely to state that their household actively participates in community meetings, perceives that their opinion is respected, and agree with the decisions made by the executive committee.[8] For example, holding all other variables at their observed values, the results indicate that on average, being a woman reduces the likelihood of perceived respect in community meetings from 46.7% to 34.9%, a decrease of 11.9 percentage points (95% CI: [−22.7, −0.1]).[9]

Although wealthier households are more likely to attend community meetings, they are not more likely to actively participate, perceive their opinion is respected, or agree with the executive committee than are poorer households. Furthermore, counter to our expectations, those that live farther away from the community center, are more likely to state that they actively participate, perceive their opinion is respected, and agree with executive committee.

Age and education, follow similar trends in participation. While older respondents are more likely to say that their opinions are respected, they are less likely to agree with the decisions made by the cabildo, as are those with more education. As expected, households living in larger communities are less likely to actively participate or perceive that their opinion is respected, however, those in larger communities are more likely to attend community meetings.

With respect to the influence of communal governance attributes, the results suggest that organization and leadership training may contribute to more inclusive processes. Households in more organized communities were significantly more likely to attend community meetings and actively participate in those meetings. Similarly, households in communities where the executive committee had received leadership training were more likely to attend community meetings. Holding all variables at their observed values, the results indicate that leadership training produces a 27 percentage-point increase in attendance (95% CI: [20.7, 32.6]).

The percentage of women in the executive committee, however, is negatively associated with attendance and is not significant on other forms of participation or agreement with the executive committee. Likewise, households in communities participating in the PES program (PSP) are less likely to attend assembly meetings; PSP participation is not significant for other outcomes.

5.3. GOVERNANCE FACTORS TO INCREASE INCLUSION AND PARTICIPATION OF WOMEN

To identify if certain governance conditions improve women's participation, we test whether women living in communities that have higher percentages of women in leadership, and those in communities where the executive committee had received leadership training, are more likely to participate in community meetings and agree with the executive committee decisions (see Table 3). While limited in their influence (see marginal effects in appendix A table A.4), the results indicate that women living in communities with a higher percentage of women in the executive committee were more likely to attend meetings, actively participate and agree with the decisions made by the executive committee. Likewise, women living in communities where the leaders had received training were also more likely to actively participate in meetings.

6. DISCUSSION

Our exploratory analysis applied the IAD framework to assess participation in communal decision-making processes, with an eye toward how the framework can help to diagnose barriers to participation, and more specifically, identify malleable governance mechanisms likely to promote more inclusive processes (Theesfeld et al., 2017). Our findings from the Ecuadorian highlands reiterate the importance of participatory processes and illustrate some of the inherent challenges to creating inclusive spaces, even in relatively homogenous communities. The results provide insights into ways in which communities and external organizations may make relatively small institutional and organizational changes to support more inclusive decision-making and highlight areas for future research on the institutional mechanisms to increase participation, and the causal links between participation, agreement with decisions, and their outcomes.

6.1. INCLUSION AND AGREEMENT IN COMMUNAL DECISION PROCESSES

Our tiered analysis of participation underscores the distinct types of engagement in communal discussions and how they may influence collective agreement (Agarwal, 2001; DeCaro & Stokes, 2013). While we are unable to decipher the direction of the relationships between our participation variables and agreement, our results indicate a positive association between attendance at community meetings and agreement with the decisions made by community leaders. Furthermore, our findings suggest that perceived respect in the decision process may be just as consequential. Consistent with literature on the role of procedural justice in support for collective decisions (Colquitt et al., 2001; Frey et al., 2004), across our case study sites, households that perceived that their opinion was respected were significantly more likely to agree with the executive committees' decisions.

Many communities, however, struggle to get consistent household attendance and even more so, to create conditions in which households perceive that their opinions are respected. In more than half of the communities, less than 60% agreed with the decisions made by the community leaders. Likewise, only 40% of households surveyed considered their opinion respected in community discussions, although results varied by community.

At the household level, the most striking barrier to participation and agreement is gender. None of the study

VARIABLES	ATTENDANCE	ACTIVE PARTICIPATION	OPINION RESPECTED	AGREE WITH EXEC. COMMITTEE
	(1)	(2)	(3)	(4)
Gender = 1, Woman	−0.361	−1.208***	−0.927	−0.649**
	(0.248)	(0.218)	(0.683)	(0.283)
Age	0.005	0.007	0.018*	−0.021*
	(0.009)	(0.009)	(0.010)	(0.011)
Education = 1, 7 years or more	−0.124	0.078	0.385	−0.586**
	(0.261)	(0.233)	(0.267)	(0.293)
Off-farm income = 1, Yes	−0.329	0.949***	0.318	0.103
	(0.259)	(0.354)	(0.288)	(0.402)
Wealth index	0.162*	−0.084	0.068	0.063
	(0.085)	(0.082)	(0.094)	(0.132)
Community sector = 1, High	0.271	0.710**	0.981***	0.399
	(0.540)	(0.326)	(0.197)	(0.268)
Community size	0.006***	−0.003***	−0.002***	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Organization index	0.694***	0.250***	−0.115	−0.132*
	(0.127)	(0.089)	(0.093)	(0.079)
Women in executive committee	−4.077***	−1.371**	−0.445	−0.920
	(0.845)	(0.553)	(0.996)	(1.023)
Gender * Women in executive committee	1.479*	1.672**	0.176	1.926**
	(0.801)	(0.657)	(1.470)	(0.765)
Leadership training = 1, Yes	2.163***	−0.689	−0.006	1.174
	(0.324)	(0.604)	(0.658)	(0.871)
Gender * Leadership training	−0.495	0.690**	0.734	−0.224
	(0.328)	(0.295)	(0.615)	(0.275)
PES Program = 1, PSP Participant	−1.481***	−0.013	−0.416	−0.400
	(0.296)	(0.446)	(0.399)	(0.620)
Constant	0.487	0.532	−0.571	1.171
	(0.549)	(0.611)	(0.464)	(0.719)
Observations	474	473	459	474
McFadden's Pseudo R2	0.196	0.0742	0.0790	0.0517
Overall correct predictions (%)	76.37	64.27	64.71	63.08

Table 3 Logit models with gender interaction.

Robust standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

communities have formal rules limiting attendance, voice, or vote of women in their community assembly meetings and respective decision processes. Nonetheless, regression results found that women were significantly less likely to state they their household actively participates, or that their opinion is respected in community meetings. Women were also significantly less likely to agree with the decisions made by the community leaders.

At the community level, our findings reiterate the difficulty of inclusive decision-making in larger groups (Poteete & Ostrom, 2004; Agrawal, 2007). Households living in larger communities were significantly less likely to actively participate in assembly meetings or perceive that their opinion is respected. We note, however, that households in larger communities were significantly more likely to attend assembly meetings, and in turn,

community size was not significantly associated with whether a household agreed with the executive committee decisions.

6.2. MICRO-GOVERNANCE MECHANISMS TO INCREASE INCLUSION AND AGREEMENT

For community leaders and external organizations, the findings point to how specific governance mechanisms can influence inclusion and agreement with communal decisions. First, our findings indicate that meetings matter. The results echo common-pool resource scholars' emphasis on the importance of shared venues for information sharing, trust-building, and discussion (Berkes et al., 1998; Dietz et al., 2003). Our regression results found that households living in communities with higher organization index scores (an index based the frequency of community meetings and work parties, and sanctions for non-attendance) were significantly more likely to regularly attend and actively participate in community meetings. Quantitative and qualitative findings further suggest that frequency and attendance may be important for information sharing and agreement, particularly in larger communities.

Second, the results suggest the disparate ways in which external interventions can influence communal decision-making processes. For example, leadership training provided by external organizations was positively associated with attendance and household agreement, while participation in the PES program was associated with lower levels of household attendance at community meetings.[10] Households in communities where leaders had received leadership training were significantly more likely to attend assembly meetings and agree with decisions made by the executive committees. Furthermore, training may encourage opportunities for women to participate in discussions. In conversations with leaders, several spoke of the benefits of training in accounting and budgetary processes, as well as other technical skills. One leader spoke specifically about workshops on recognizing gender differences within the community. Future assessments are needed on the specific training components that are most beneficial.

Finally, while the influence of women in leadership positions is mixed, our quantitative results indicate that women are more likely to participate and agree with communal decisions when they are represented in leadership committees. Qualitative findings suggest that women on executive committees may have supported projects that women perceived beneficial to their households and the community. Nonetheless, overall household attendance was lower in communities with more women leaders. The results raise concerns of the overall efficacy of representational quotas and signal the need to better understand how social norms and biases may influence broader community receptivity of women leaders and how to support them in leadership positions (Agarwal, 2010; Coleman & Mwangi, 2013; Mwangi et al., 2011).

7. CONCLUSIONS

Faced with increasing pressures from environmental degradation and climate change, scholars and practitioners increasingly call for greater inclusion in resource management and planning (Gupta et al., 2015; Lockwood et al., 2010; Mcleod et al., 2016). We recognize that participation is deeply embedded in complex social, economic, and historical relationships that are not simple to alter via minor governance modifications and require deeper change over time (Arnstein, 1969; Cooke & Kothari, 2001). At the same time, we recognize the need for community leaders and practitioners to have a portfolio of concrete tools that encourage greater inclusion in collective decisions, even if only starting to work at the margins.

Our findings, while limited in scope, suggest three places for targeted intervention to support more inclusive decision-making processes. First, is the frequency of meetings. At a minimum, meetings provide a forum for information sharing regarding community decisions. While sanctions for non-attendance may also be instrumental, more research is needed. Second, is leadership training. The results point to potential benefits from training on how to gain representation from all community members and on decision-making mechanisms to improve transparency and accountability. Lastly, our findings suggest that greater leadership representation of traditionally marginalized individuals, such as women, may support decision-processes that are responsive to a broader array of constituent interests and needs.

The IAD framework provides a structure to further dig into the black box of the micro-institutions, leader characteristics, and participant attributes that shape the internal decision-processes. While rules limiting access are an obvious starting point, future research is needed on how information, and aggregation rules (e.g., vote versus consensus) influence engagement and agreement in communal decision-making. In addition, we need to continue to assess institutions to increase representation of traditionally marginalized groups in decision-making bodies, and how external organizations can support said groups in collective decision-making processes. Likewise, more research is needed on the distinct ways in which individuals interact or participate in the decisions process and the causal links to attitudes about the decision. We

look forward to future studies that move us toward a toolbox of institutional and organizational mechanisms to support more inclusive communal decision-making.

NOTES

1 Information and text provided in this section comes from earlier publications, (Hayes et al., 2017; 2022).

2 We refer readers to Bretón Solo De Zaldívar, 2015 for a critique of how external organizations have worked in the broader central Andean region.

3 Socio Paramo program is part of the Programa Socio Bosque (PSB), a government payment for conservation program created in 2008 with the dual goals of preventing the destruction and degradation of native ecosystems, and increasing income and human capital to the poorest communities of Ecuador. The program provides an economic incentive to poor farmers and communities who voluntarily enter into conservation contracts (Hayes et al., 2017).

4 Survey methods as previously described in Hayes et al., 2017; 2022.

5 Note, a woman head-of-household does not imply that there was no man in the household or vice versa.

6 Letters are used to represent each community to protect community identity.

7 Please see appendix A, table A.5 for bivariate logit regressions using clustered errors.

8 As explained in the limitations section, survey questions ask the respondent to speak of their perceptions of the household (not the individual). However, we consider it likely that women respondents are reflecting on themselves (and not their households) when responding to questions about their perceptions of whether their opinions are respected in community meetings and whether they agree with decisions.

9 For all marginal effects please see appendix A, table A.3.

10 We are uncertain why the PES program is associated with lower levels of attendance at community meetings. Our interviews were conducted after a period in which the program had stopped making payments. It is possible that community members were less engaged at that time due to frustrations with the program (Hayes et al., 2022).

ADDITIONAL FILE

The additional file for this article can be found as follows:

- **APPENDICES.** Appendix A and B. DOI: https://doi.org/10.5334/ijc.1200.s1

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COMPETING INTERESTS

The authors have no competing interests to declare.

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