



Methodological and Ideological Options

Background inequality and differential participation in deliberative valuation: Lessons from small-group discussions on forest conservation in Colombia



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ABSTRACT

Deliberative monetary valuation (DMV) methods have been proposed as a more democratic alternative to traditional contingent valuation methods (CVM) for natural- resource decision making. These deliberative methods are subject to criticisms. One issue of concern is that the socio-economic inequalities among members of the deliberative group may severely impede communication and consequently distort deliberative outcomes. To examine such possibility we applied the deliberative methodology in a case study of forest conservation in Colombia. We found that those individuals who assumed social (environmental) leadership positions tended to dominate group discussion. Nevertheless, the variations in the capacity to engage in group deliberation were better explained by participants' personal characteristics than external constraints or group pressure. Also, there was little evidence that leadership and domination in group deliberation significantly influenced participants' stated WTP. We conclude that DMV is vulnerable to the background inequalities among group members. The democratic potential of deliberative methods should be critically examined in terms of the capacity to communicate effectively and equally.

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1. Introduction

In a typical study using the contingent valuation method (CVM) researchers collect data from individuals in isolation. Standard surveys are administered in a setting that prevents respondents from sharing their opinions and perspectives with each other. Neoclassical theory states that there is no need for social interaction because individual preferences are what matters when assessing the desirability of collective decisions. If people have access to, and an understanding of, the relevant information and the valuation scenario is adequately designed, respondents are likely to offer meaningful and truthful responses derived from well-formed preferences. In contrast, deliberative valuation methods are advocated on the assumption that social interaction is necessary for producing better collective decisions (Bromley, 2004; Söderbaum and Brown, 2010).

Deliberative monetary valuation (DMV) combines economic and political processes to place a monetary value on environmental goods and services. Participants are asked to state, individually or collectively,

their willingness to pay (WTP) after participating in a deliberation. The monetary value obtained is meant to be used in environmental assessments, however, these figures do not lend themselves to a single interpretation (Spash, 2008). One of the aims of DMV is to increase the legitimacy and fairness of collective decisions (Lo, 2014; Vargas et al., in press; Wilson and Howarth, 2002) through participation in an open, inclusive and reciprocal dialogue among free and equal citizens (Cohen, 1989).

Some theorists believe that deliberative approaches for decision making are superior on political grounds to standard economic methods to the extent in which they recognize the use and expression of the reason when citizens advocate or reject a change in practice or policy. Using the state of Oregon health care consultations in the early 1990s Gutmann and Thompson (2004) shows how a prioritized list of health services based on cost-benefit calculations was opposed by citizens because they believed that the resulting ranking was not fair or right. Rejection which led to a consultation process that produced a revised list which was considered an improvement over the original one. Similarly, Dietz et al. (2009) and Vargas (2015) show that in relation to standard valuation methods the reasons accompanying monetary values expressed after deliberation reflect a greater concern for the equity issues of the policy proposal.

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Deliberative methods, however, are subject to criticisms. Some critics argue that the socially more influential participants tend to dominate discussions, i.e. deliberation favors those who are most educated and who possess higher social standing (Young, 2000). In this sense, deliberation is influenced by society's structural inequalities which "inhibit the political participation of some citizens with formal equal rights at the same time that they relatively empower others" (Young, 2000, p. 34). This gives rise to the "internal" exclusion phenomenon in deliberation. People are internally excluded because they lack the opportunity to influence the thinking of others. In a similar vein O'Neill and Spash (2000) discuss the "ability to say" issue. Communicative exclusion arises from the uneven distribution of the capacity to speak and to be heard. This uneven capacity can be due to variations in the level of education and the ability to use formal languages (Spash, 2007).

Uneven participation can also lead to the risk that attitudes expressed after deliberation will converge toward those of the more influential participants (Sunstein, 2004). Consequently, collective decisions are less likely to be informed by reflective preferences. Unreasoned conformity, instead, could prevail (Luskin et al., 2002). The variations in the capacity to engage in group deliberation could therefore compromise DMV's capacity to achieve its democratic potential. In the same vein, scholars from the community-based development field warn that participatory spaces which intend to democratize the decision making process sometimes fail in mitigating the opportunism of prominent members of the community, thus providing opportunities for the elite to capture the process (Platteau, 2004).

Here we draw on Sen's (1999) capability approach to analyze the DMV alternative in terms of people's capacity to participate in public discussion. An important implication of this approach is that it highlights the central relevance of capability inequality, but does not, by itself, lead us to demand capability equality, as some have suggested (Wilson and Howarth, 2002). Based on this we argue that we should not expect, nor demand, equal participation in deliberation. Nevertheless, participation inequality could be mostly explained by personal characteristics, rather than social circumstances.

We use an empirical DMV study to examine people's patterns of participation in discussion and relate their participatory activity to their socio-economic characteristics. Our aim is to determine if socially advantaged individuals tend to dominate discussions. Specifically, we (a) examine whether individual participation during deliberation is related to socio-economic characteristics (i.e. leadership, education, income, gender); (b) analyze participation inequality to examine the extent to which it is explained by socio-economic conditions; and (c) examine the effect of participation inequality on the expressed WTP.

Citizens were gathered to discuss a Payment for Ecosystems Services (PES) program, which would be used for conserving the last remnants of tropical dry forest (TDF) in the Colombian Caribbean. We assessed the level of participation in terms of frequency and length of participants' interventions in group discussion. We administered a survey for collecting responses regarding peoples' willingness to fund the PES program and their socio-economic characteristics and conducted statistical analysis. In addition, we recorded the group deliberations and analyzed transcripts of the recordings.

2. Citizen Participation in Deliberation

Deliberative democracy theorists usually argue that ordinary citizens should have the opportunity to take part in deliberation, ideally on an equal footing (Steiner, 2012). Equality in participation requires that no one person dominates the deliberative process, irrespective of differences in power and prestige (Thompson, 2008). One of the challenges of deliberation arises when the concept of democratic discussion is equated to critical argument (Young, 2000). Young (1996) argues that this is a culturally biased conception of deliberation that tends to silence or devalue some people or groups. For example, those with higher education and income levels, those who are males and those with a special

social status are expected to have the greatest influence in collective group deliberations. How does this critique relate to the normative DMV frameworks that have been proposed?

2.1. Capabilities and Deliberation¹

Citizens demonstrate varying capacities to engage in public debates and everyday discussions, implying that those less vocal and proficient in verbal communication might be excluded from effective participation in deliberation (O'Neill et al., 2008; Spash, 2007). Identifying the source of those disparities is important because it sheds some light on the ways in which disadvantages can be rectified, as well as the degree to which this is feasible and desirable. As previously mentioned, Sen (2009, p. 232) argues that the capability perspective highlights the central relevance of the inequality of capabilities in the assessment of social disparities, but does not demand that we endorse policies aimed at equalising everyone's capabilities.

One of the basic capabilities, necessary for avoiding or escaping poverty, is that of political participation. For deliberation it means being capable of engaging in public discussion, i.e. to be communicatively competent. The degree to which an individual becomes communicatively competent depends upon both the presence of the necessary resources (e.g. schooling) and the extent to which these resources can be converted into a capability. Sen (1999) distinguishes different sources of variation between resources and the advantages individuals get from them. First are personal heterogeneities or conversion factors (e.g. physical condition, cognitive and non-cognitive skills). Second are social factors that shape the context in which the individual employs their resources and makes choices. The norms regulating communication and admissible forms of knowledge are an important factor in deliberations. Finally, relational perspectives are those factors that influence how the individual understands his/her relative position in society, for example, social norms and conventions that define gender roles or discriminating practices.

In deliberation, the element that connects these three sets of factors is communication. The degree to which one can be considered communicatively competent depends to a certain extent on the kind of communication deemed admissible. DMV approaches that are based on the Kantian ideal of the public use of reason restrict deliberation to a process of reasoned argumentation. Thus, communicative competence is set in advance and people's capacity to deliberate is judged according to standards of adequacy external to the actual deliberative practice. By this account, a person becomes a better deliberator by acquiring those resources which can improve his/her argumentative performance. Consequently, there has been a call for institutions to correct disparities in the allocation of relevant resources (e.g. income, opportunities, rights and entitlements) or to only grant access to deliberation to the most capable individuals (Bohman, 1997).

The problem with the emphasis on redressing resource inequalities is that it ignores how people differ in their ability to convert resources into communicative competence. Different levels of skills related to cognition and communication prevent individuals from achieving an equal level of communicative competence even if they are granted the same resources (Bohman, 1997). The point is that resource equality does not translate into capability equality. In some circumstances disadvantages cannot be fully "corrected" (Sen, 1999).

A more inclusive DMV approach is one that does not assume that citizens are similarly situated and capable of making use of all their opportunities and resources. In this approach, the idea of communicative competence emerges from the interplay between the communicative practices of those who deliberate and their personal characteristics and resources. Therefore, there are not a priori restrictions on the type of communication deemed deliberative. The emphasis is on the capacity

¹ A more elaborated discussion of the arguments presented in this section can be found in (Vargas et al., in press).

to effectively communicate and opportunities for inducing reflection on preferences, interests and values (Dryzek, 2000). Recognizing those forms of communication that the deliberating individuals are able to use and understand is instrumental in accommodating a greater diversity of people. In other words, inclusion is advanced through the recognition of difference.

2.2. In Search of an Inclusive DMV

DMV proponents who aim to make environmental valuation and decision making more democratic are critical of the procedures that take preferences in isolation from public debates. Two broad alternatives, which can be distinguished as classical and critical, are often proposed. The first, is justified by the view that ecological goods or services should be evaluated in a setting where a sense of social belonging is evoked, so that individuals are expected and encouraged to take a public interest perspective that goes beyond their personal considerations. The second draws on critical theory to present deliberation as a procedural framework for social cooperation in which discourse is utilised as a mechanism for conflict resolution.

In the classical approach there is a line of argument built on the idea that individuals should play different roles, citizen-consumer, in accordance with the nature of the object of valuation and the social context in which they are situated (Vatn, 2009a, 2009b). Sagoff (1998), for instance, argues that when making a collective decision individuals express opinions about what they ought to do as society rather than private consumer preferences. By this account the individual is construed as a community member who is expected to take on the citizen role to address the problem from a “We” perspective. A deliberative process of valuation is therefore appropriate because it places the individual in a social context that stresses the principles, beliefs, and commitments of the community (Jacobs, 1997; Vatn, 2005).

It is assumed that deliberation is regulated by Habermas’ theory of communicative action and, as a consequence, deliberating individuals must be able to engage in arguments about which norms support the community’s shared values (Vatn, 2009b). But, if citizens are not able or competent enough to take part in deliberation then specific rules that help secure the rights of participants must be created and/or allow for more competent representatives to be selected (Vatn, 2009b, p. 2213).

Others take on a liberal perspective to advocate for a process in which impartial and objective decisions are made. In these deliberations participants are encouraged to adopt a public-interest perspective or to act as agents of society (Brown et al., 1995; Ward, 1999). Some see deliberation in terms of Rawls’ original position in order to remove the vested interests and personal inclinations of participants (Brown et al., 1995; Howarth and Wilson, 2006; Wilson and Howarth, 2002). Because decisions made within the discussion group are expected to be impartial and objective, there is no problem in restricting the access to those most able to use reason. For example, Brown et al. (1995) indicate that participants should be reasonable, free of personal conflict of interest, free of mental and emotional disability, and possess an adequate level of maturity, intelligence and education. For critics, this idealization amounts to say that the public use of reason is a privilege of a few and even that deliberation is not needed at all (Dryzek, 2000).

In an attempt to avoid discriminatory conditions of admissibility, Wilson and Howarth (2002) require equality in resources and capabilities as a pre-requisite for deliberation, i.e. the condition of equality among participants is achieved before deliberation begins. According to Young (2000) this type of argument suffers from a circularity problem: ideal deliberative processes lead to substantively just outcomes because deliberation begins from a starting point of justice. The problem of exclusion is solved by postulating it away.

In contrast, the critical approach focuses on the capacity of deliberation to facilitate reciprocal understanding and recognition between individuals. It does not assume any objective moral position nor does it

have a substantive notion of the common good. It highlights the potential of discourse to identify valuation biases hidden behind disciplinary assumptions and conceptual norms (O’Hara, 1996), and to emancipate value formation and expression at the micro-political level (Lo, 2013; Lo and Spash, 2013). According to this view, deliberation supports the social construction and reconstruction of preferences, on the understanding that deliberation enables individuals to pursue their own forms of valuation. This means that it is open to alternative forms of communication and so does not rely on the sharp distinction between rhetorical and rational speech (which is required by the classical approach) to meet the ideal of non-coercive agreement. By admitting wider communicative strategies the approach is also amenable to the idea that reasoning is a capacity expressed in different ways, not a privilege of modern Western societies or a particular type of person (Sass and Dryzek, 2014).

The issue of inclusion is therefore not limited to an institutional design challenge but is addressed within deliberation as long as it recognizes the diversity of participants and their forms of expression and reasoning. Deliberation conceived in this way has, therefore, a greater potential to include people from diverse social and cultural backgrounds, and to recognize the pervasive heterogeneity of human beings with respect to their capacity to take part in public discussion. It also means that a more inclusive deliberative framework looks beyond institutional fixes external to the actual deliberative practice to pay greater attention to deliberation’s communicative and social interaction aspects.

From the above discussion it is clear that communicative norms play a key role in improving inclusion, particularly in the presence of an uneven distribution of resources. Greater inclusion, however, does not guarantee fair engagement in public deliberation, because the ability to communicate, which is a function of personal socio-economic characters, is a crucial determinant of deliberative quality.

What then should we expect in terms of people’s participation in deliberation? If political equality is the presumption that all participants have an equal chance of affecting the outcome and if we assume that all participants are equally competent, then there must not be great discrepancies in their level of participation. Logically, this also means that participation measures should be uncorrelated with background conditions variables, like education and social position. But, if we recognize that equality in communicative competence is not feasible due to the personal conversion factors then unequal participation in deliberation is to be expected, yet it must be mostly explained by unobserved personal characteristics.

3. Material and Methods

3.1. Study Site

The study was conducted in the Colombian municipalities of Luruaco and Santa Catalina, between the cities of Barranquilla and Cartagena in the Colombian Caribbean² (Fig. 1). The area was once covered by tropical dry forest, TDF, but due to expanding human population and associated economic pressures the forest is now highly fragmented and degraded. TDF are characterized by pronounced seasonality in rainfall distribution, causing seasonal droughts that have a great impact on all organisms, and result in high levels of endemism and diversity. Globally, the TDF has long been considered the most threatened major tropical forest types (Sánchez-Azofeifa and Portillo-Quintero, 2011), partly due to being located in areas with good conditions for agricultural and cattle development.

TDF are in danger of disappearing in Colombia. Estimates suggest that <4% of their original area remains intact and that most of the remaining forest areas in the country are tiny fragments surrounded by

² The study area was selected base on the principal’s investigator prior experience and knowledge of the region and the community.

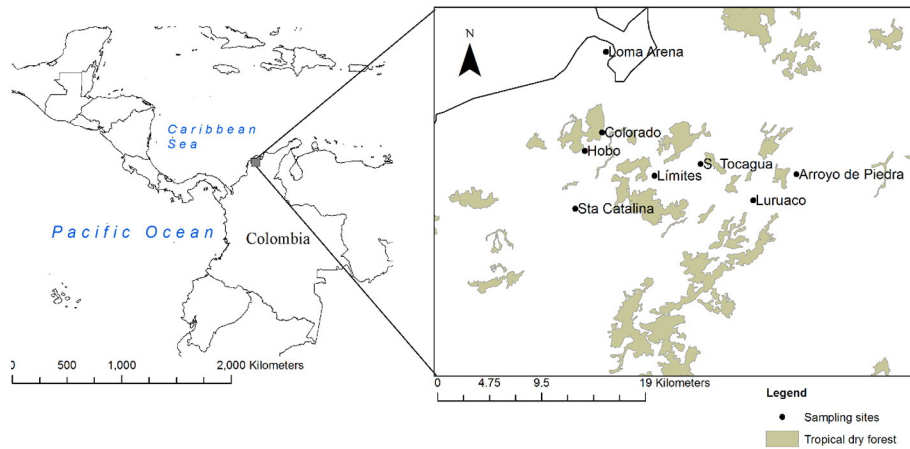


Fig. 1. Study site location in Colombia.

crop-lands and grasslands. Only 3% of the remaining dry forests in the country are inside Protected Areas (PA) (García et al., 2014). Given the critical conservation status of TDF and its role in the provision of important ecosystem services, e.g. erosion prevention and maintenance of soil fertility, the TDF has been declared a strategic ecosystem for Colombian environmental policy. Further expansion of PAs and payment-based policies aimed at conserving forests on private land, for example Payment for Ecosystem Services (PES), are considered priority management strategies.

We conduct this study in an area where some TDF remnants in good condition and with high conservation value remain. Two of these remnants were accorded PA status prior to the commencement of the research. The area also has a relatively long history of conservation in relation to the protection of the Cotton-top tamarin (*Saguinus oedipus*) an endemic, critically endangered primate (Savage et al., 2010). Those forest remnants are mostly located on sloped terrains given that steep slopes lower the benefits of agricultural development and thus of deforestation (Robalino and Pfaff, 2012). That is not to say that forested areas are not under threat. While in the past deforestation was driven by agriculture and cattle ranching, current deforestation is being caused by mining activities (quarries) for which the slope does not play a role. Lastly, around 45% of households in the area are below the official income-based poverty line (Vargas and Díaz, 2014).

3.2. Citizen's Deliberation on Forest Conservation

We held a deliberative workshop on forest conservation. We presented participants a PES scheme in which local households pay landowners for conserving the remnants of TDF inside their lands, i.e. privately owned land. This is based on the Colombian National PES policy,³ which requires Municipal governments to administer and finance through their tax revenues a scheme aimed at securing the provision of ecosystem services by paying landowners to protect the forest. The focus of this study was on the payment issue, i.e. on the willingness of households to pay an additional tax to fund the PES scheme. Although most of the discussion revolved around the social acceptability of the proposed program, other issues, such as current land prices, were also mentioned and discussed. In particular, participants described how past attempts to buy land for conservation failed due to the opportunistic behaviour of landholders.

As part of the data collection process we administered, before and after the deliberative workshop, a contingent valuation survey between July and August 2014. We asked participants the valuation question:

“Are you willing to pay a monthly tax to the municipal government to finance the protection of the 700 ha of forests that are inside the municipality?” If the answer was affirmative, we asked the respondents to state their maximum WTP. They were presented an open ended question and requested to indicate the reasons or considerations behind their WTP decisions, as proposed by Dietz et al. (2009). We used the payment card format as an elicitation method.⁴

We recruited participants using a two-step procedure. In the first stage, 225 households from the study area were randomly selected to participate in a contingent valuation survey. In the second stage we invited 50 households from the initial sample to participate in the deliberative workshop. We selected these households on the basis of the place of residence, educational level, gender, and experience in conservation activities, regardless of their responses to the contingent valuation questions in the first stage of research. This could ensure that individuals with different environmental preferences and attitudes (as indicated by their WTPs and open-ended explanations) be invited, thus reducing selection bias. In total 39⁵ people showed up on the workshop day (Table 1).⁶ We randomly assigned the participants to five small discussion groups (4 groups of 8 and 1 group of 7).

Participants were involved in a series of group discussions on TDF conservation issues in general and the PES program described above in particular. The workshop comprised three discussion sessions. The first focused on “Concern about the TDF”, where participants expressed their views about the importance of the forest for their livelihoods, well-being and the perceived relationship between conservation and development. The second session of discussion explored people's opinion about the acceptability of the proposed policy and their willingness to fund it through a new tax. We described the policy in the same terms and using the same materials that we used during the first stage contingent valuation survey to avoid introducing an information variable bias that we could not account for in analyses of the resulting data. In the third small-group discussion session we asked participants to make a collective decision on the amount (WTP) they thought households should pay to finance the protection of the TDF. At the end session 2 we re-administered the contingent valuation survey from Stage 1.

3.3. Variables and Measures

As our aim is to analyze the patterns of participation in discussion, we used two measures based on the frequency and time of

³ See the Colombian National PES Strategy (Ministerio de Ambiente y Desarrollo Sostenible, 2012) and the Decree 953 of 2013 (Ministerio de Ambiente y Desarrollo Sostenible, May 17, 2013).

⁴ (\$1, \$2, \$3, \$5, \$7, \$10, \$15, \$20, \$30, \$40, \$50) values in thousand Colombian pesos.

⁵ Of the eleven people who did not show up seven were women (63%) and their mean age was 42 years. In terms of educational level four (36%) of them had attained primary or less, four (36%) mid-secondary and three (28%) secondary or greater.

⁶ Participants in the workshop received COP 25,000 for their participation.

Table 1

Sample socio-demographics.

Source: Banco de la República, Colombia.

Variable	% (n)
Env_leader	12.8 (5)
<i>Education</i>	
Primary or less	28.2 (11)
Mid secondary	10.3 (4)
Secondary	35.9 (14)
“Tertiary”	25.6 (10)
<i>Income (COP, thousand)^a</i>	
<400	35.9 (14)
401–600	35.9 (14)
601–800	15.4 (6)
801–1000	7.7 (3)
>1000	5.1 (2)
Female	56.4 (22)
Age (years, average)	42.4

^a 2013 market Exchange rate: COP 1,869 per USD.

interventions, all expressed relative to the members of their small group. We audio-recorded all discussions and used transcriptions of sessions 1 and 2 as the primary material for analyses.⁷ Participatory rate variables are:

- **Intervention:** The number of times that each participant spoke divided by the total number of interventions made within the small group
- **Time:** The total time in seconds that each participant spoke divided by the total time of interventions made within the small group.

We measured background conditions using the following variables:

- **Female:** dummy variable taking the value of 1 if the respondent is a female
- **Age in years**
- **Education:** We used the following categories according to the highest grade of education completed. Primary or less; Basic-Secondary (6–9th grade); Mid-secondary (10–11th grade); and “Tertiary”. It is important to note that most of the people that fall into the last category have pursued technical or specific skills training, which in most cases culminate in the receipt of certificates, but no participants had completed undergraduate education.
- **Income:** average monthly household income. We used six income brackets (see Table 1).
- **Env_lead:** dummy variable taking the value of 1 if the respondent is recognized as environmental leader. Five participants were leaders.

We used the following variables in the WTP regressions:

- **$lWTP_t$:** The logarithm of the mid-point interval of the payment card in period t , where $t = \text{pre}$ if the WTP was measured before deliberation and $t = \text{post}$ if the WTP was measure after deliberation.
- **$Factors_{\text{post}}$:** Open-ended data were coded to capture the number of factors respondents took into consideration when making their WTP decisions, as in Dietz et al. (2009)
- **G_X :** For each participant the weighted average WTP of his or her small group, using participation rates (X : Intervention, Time) as weights. The small group weighted average exclude the participant in question, thus varying from participant to participant within each group.

4. Results

4.1. Participation in Deliberation

A total of 710 interventions with a total duration of 285 min were made during the two sessions (Table 2), which means that on average each individual spoke 18 times and for 7.3 min. Women spoke more than men (64.5% of interventions, 52.8% of time), although men's interventions were longer on average, 7.9 min versus 6.8 min. When broken down by educational level, we observed that the most educated participants spoke more on both a total and average basis. For example, the typical “Tertiary” education participant number of interventions was 2.5 times greater than that of the average less educated participant. In terms of income a greater share of the interventions and time corresponded to lower income individuals, but when we calculated the relative number of interventions or time, those with the highest income participated more. Individuals at the top end of the income scale made on average 34 interventions and spoke for 14.8 min, whereas participants in the lowest income category made 18.9 interventions and spoke for 7.5 min. Environmental leaders, despite only comprising 13% of participants, made one third of the interventions and spoke one third of the total time (Table 2).

We found clear heterogeneity among the groups. Take for example groups 1 and 3. In group 1 the average number of interventions was 4.6 vs 41.1 in group 3, which translates into 76 vs 14.4 s per intervention for groups 1 and 3, respectively. While group 3 was a much more talkative, group 1 participants tended to make longer and more elaborate interventions.

In summary we found that individuals participated unevenly in discussions; suggesting that (i) participatory rates are positively related to education levels and leadership position, and (ii) that there were appreciable differences between groups in terms of their internal communicative dynamic.

We conducted a regression analysis to determine if there is a relationship between participation rates and participants' background conditions. We used cluster standard errors to better account for the structure of the data, with the small discussion group as the cluster unit. Regression model errors are thus assumed to be independent across clusters but correlated within them. Given the small sample size and number of clusters present in our case we followed Imbens and Kolesar (2012) and used the Bell and McCaffrey (2002) modification because it has better coverage rates than conventional cluster standard errors.

Table 2

Level of participation in group discussion in terms of the average number of interventions and time in minutes used by participants.

		Interventions (%)	Time (%)	Interventions (mean #)	Time (mean min.)
Env_leader	Yes	31.4	31.5	44.6	18.0
	No	68.6	68.5	14.3	5.7
Education	Primary or less	17.5	19.0	11.3	4.9
	Mid secondary	11.7	5.9	20.8	4.2
	Secondary	35.1	31.0	17.8	6.3
	“Tertiary”	35.8	44.1	25.4	12.6
Income	<400	37.2	36.6	18.9	7.5
	401–600	22.1	14.8	11.2	3.0
	601–800	26.2	28.4	31	13.5
	801–1000	4.9	9.8	11.7	9.3
	>1000	9.6	10.4	34.0	14.8
Female	1	64.5	52.8	20.8	6.8
	0	35.5	47.2	14.8	7.9
Group	1	5.2	16.4	4.6	5.9
	2	13.2	18.0	11.8	6.4
	3	46.3	27.7	41.1	9.9
	4	21.1	17.8	18.8	6.4
	5	14.1	20.0	14.3	8.2

⁷ Participants offered informed consent on recording during the workshop.

Although the clustering strategy allows us to take into account that model errors for individuals in the same group may be correlated, we cannot statistically test whether differences in participation were systematically driven by group characteristics, such as gender composition and age heterogeneity. Nonetheless, we believe that the possible effect of group characteristics could be mitigated by randomly assigning participants to the discussion groups.

Regression results show that participants occupying a recognized leadership position are significantly more vocal than non-leaders (Table 3). They tended to make more statements and to use more time. We did not find any relationships between participation rates and education, gender, income or age.

4.2. Inequality in Participation

We used the Shapley decomposition method to analyze the degree to which participation inequality is explained by background conditions. The goal is to determine the exact contributions of each explanatory variable of a linear regression to the total explained variation. Contributions are the percentage contributions of each independent variable to the variance of the dependent variable (Israeli, 2007). In our case this decomposition allows us to determine the contribution of each background condition variables to the overall participation inequality, represented as the variance in participation rates.

We found that the most important variable contributing to participation equality is whether the participant is an environmental leader (Table 4), which explains ~23% of the total variation in both the number of interventions and time. The second most important variable influencing participation is education (~8.3% for interventions, ~7% for time, Table 4). We did not find any strong relationships between income, gender and age with participation level.

In summary, we found that background conditions account for approximately one third of the variation in participation suggesting that most of the variation in participation rates is associated with personal heterogeneities. In other words, with non-observed individual characteristics related to cognitive and non-cognitive skills among others.

4.3. Participation and WTP

Our last test objective was to examine the influence of participation inequality on the stated WTP. Drawing on the Luskin et al. (2002) information driven model we express the change in WTP (ΔWTP_i) as a function of the number of factors participant i took into account when answering the valuation question, ($Factors_{ipost}$) and the difference between the participant's WTP prior to deliberation and the average post deliberation WTP of his or her small group, ($IWTP_{ipre} - G_{X_{ipost}}$), i.e., the distance between participant's own WTP and that of the group.

Table 3
Regression relationships between participant background and their participation in discussions.

	Intervention	Time
Env_leader	0.116*** (0.030)	0.173*** (0.042)
Education	0.016 (0.015)	0.016 (0.029)
Income	0.006 (0.007)	0.012 (0.022)
Female	-0.004 (0.02)	-0.054 (0.047)
Age	0.00 (0.00)	0.00 (0.00)
Constant	0.035 (0.081)	0.052 (0.183)
Obs.	39	39
R-Square	0.35	0.39

Cluster standard error using Bell and McCaffrey (2002) adjustment in parenthesis.
*** $p < 0.01$.

Table 4
R-Square Shapley decomposition of regression relationships between participant background and their participation in discussions.

	Intervention	Participation
Env_leader	0.23 (65)	0.23 (60)
Education	0.08 (24)	0.07 (17)
Income	0.03 (9.0)	0.05 (14)
Female	0.00 (0.0)	0.04 (9.0)
Age	0.00 (1.0)	0.00 (1.0)
R-Square	0.35 (100)	0.39 (100)

Shapley value (contribution %).

The idea behind the first explanatory variable, $Factors_{ipost}$, is that group discussion leads participants to assimilate new perspectives, interpretations, and to acquire new information, ultimately influencing their expressed WTP. We assume that a greater number of factors signals information gain and learning.

The second explanatory variable is intended to capture the influence of others on the decision made by the individual. Our expectation is that in the presence of pressure to conform participants tend to narrow the difference between their own and their small group's opinion. We used participatory rates as weights to calculate the small group's average WTP, as perceived by each participant. This takes into account that the small group's opinion will be perceived differently by each participant because it depends on his own and other's participatory activity. While the least participative member hears too much, the most participative hears too little. Because there is a negative built-in correlation between ($IWTP_{ipre} - G_{X_{ipost}}$) and the dependant variable, we entered $IWTP_{ipre}$ and $G_{X_{ipost}}$ as separate variables. Our expectation is that the coefficient for $IWTP_{ipre}$ will be negative and positive for $G_{X_{ipost}}$ if participants tend to move toward their perceived group average, i.e. if there is general convergence toward the group mean WTP.

Deliberation resulted in a decrease ($M = COP934$, $SD = 5641$)⁸ in mean WTP. This reduction was not significant (t -test, $t(37) = 1.02$, ns.). It is worth nothing, however, that there was a noticeable variation in individual WTP changes: 13 (33.3%) participants reduced their WTP, 12 (31%) did not change their WTP, and the remaining 14 (36%) increased it. In contrast, three out five leaders reduced their WTP, one did not change and one increased, i.e. leaders were more likely to express a lower WTP after deliberation than non-leaders.

Results (Table 5) shows that the average distance between the individual and group mean WTP decreased, however, that was due to the regression toward the mean effect mentioned above and picked up by the negative sign of $IWTP_{ipre}$. Although the coefficient for the $G_{X_{ipost}}$ variables are positive as expected they are non-significant, meaning that WTP changes do not appear to be driven by the influence of others, that is, there is no evidence of a general convergence toward the group mean WTP.

Rather, it is the number of factors considered what seems to be important. Individuals who took more issues into account exhibited a greater increase in their WTP after deliberation than those considering fewer factors. Participants mentioned on average 1.1 factors before deliberation and 1.9 factors after deliberation (t -test, $p < 0.001$). We observed the greatest change in those participants whose ΔWTP_i was positive, from 1.1 factors mentioned before to 2.4 factors mentioned after deliberation (t -test, $p < 0.001$).

5. Discussion

This research addressed three objectives through a DMV exercise regarding forest conservation in the Colombian Caribbean. Based on the idea that some degree of participatory inequality is to be expected and that it must be explained by participant's personal characteristics rather

⁸ M is the mean difference in WTP.

Table 5
Influence of participation on WTP.

	Time	Intervention
$IWTP_{pre}$	−0.748*** (0.214)	−0.744*** (0.212)
$Factors_{post}$	1.304** (0.528)	1.284** (0.560)
$G_Intervention_{ipost}$	0.584 (0.531)	
G_Time_{ipost}		0.520 (0.435)
Constant	−2.80 (3.819)	−2.28 (3.181)
Obs.	38	38
R-Square	0.474	0.477

Cluster standard error using Bell and McCaffrey (2002) adjustment in parenthesis.

** $p < 0.05$.

*** $p < 0.01$.

than just their social circumstances, our study investigated: (a) The relationship between individuals' background conditions and their participation in deliberation; (b) The extent to which participation inequality is explained by background conditions; and (c) Whether unequal participation affected the stated WTP, signaling the potential presence of small group mechanisms.

Our results indicate that citizens participated very unevenly in discussions and that this unequal participation was principally related to individual's recognized position of leadership, a result that lends some support to the internal exclusion critique. It seems that those not occupying privileged positions have fewer effective opportunities to influence the thinking of others. This result is not atypical but echoes what others have found in the political science literature (Steiner, 2012). In the DMV literature Kenyon et al. (2001) provide anecdotal evidence of uneven participation in their Citizen's Jury experiment.

We found that the lion's share of participation inequality, however, was associated with unobserved individual characteristics, which include those personal conversion factors that determine the degree to which participants are able to transform their resources into communicative competence. On one hand, individuals considered better off tend to dominate discussions, but on other, most of the inequality in participation seems to be related to unobserved personal characteristics or heterogeneities.

In terms of the relationship between participation and WTP our results are encouraging. They suggest that deliberation lead participants to consider more aspects of the decision and to assimilate new perspectives and interpretations, without being unduly influenced by other opinions. In other words, our results suggest that changes in an individual's stated WTP seem to be driven by learning (more broadly) rather than by the preponderance of the opinions of others. Note also that while the first set of results indicate that those in a privileged social position tend to dominate discussion, the absence of evident group effects means that decisions by people were more likely to be independent. The importance of this result must be highlighted: the usual normative expectation is that opinion and preference change be driven by the merit of the arguments presented and not by the personal influence of those who participate. As Neblo (2007) points out, deliberation is promising as long as changes in preferences and opinions are brought about by mechanisms specified in the normative theories, not by social power and group conformity.

6. Conclusion

DMV promises to overcome the democratic limitation of conventional valuation methods by giving citizens the opportunity to participate in a deliberation. The shift from decision procedures based on the aggregation of preferences elicited in isolation to a deliberative one aims to make collective decisions more legitimate. A key criterion of

democratic legitimacy, however, is the degree to which those affected by a decision have been included in deliberation. Inclusion is more than being present at a discussion; it demands that participants have the opportunity to influence the outcome.

In the context of a forest protection policy in the Colombian Caribbean, our study found that participation in deliberation was uneven and related to people's social status. Most of the variations in the capacity to engage in group deliberation however, was related to participant's personal unobserved characteristics. Uneven participation, however, did not lead to the expressions of preferences driven by social conformity. Our findings point to the importance of paying more attention to what happens during deliberation. The promises, but also the limitations, of DMV rest upon its social interactive nature. Although DMV has a greater democratic potential than CBA, this cannot be taken for granted. The democratic potential of deliberative methods should be critically examined in terms of the capacity to communicate, and not merely the opportunity to participate.

From the normative perspective we think that a more inclusive DMV approach should not impose narrow limits on what constitutes deliberation, for it assumes that individuals are equally situated and capable of taking part in discussion once they have the opportunity to do so, and thus wrongly concludes that the only challenge that deliberation faces is external constraints that prevent people from speaking up. Rather, is better to rely as much as possible on mechanisms endogenous to deliberation and less on the definition of social pre-conditions and individual commitments (Dryzek, 2000). The consideration of people's background and personal differences can aid in the design and implementation of DMV studies in accordance with the conditions and circumstances of those who participate. This way, the democratic character of valuation methods which are subsequently incorporated into decision-making can be enhanced.

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