ARTÍCULO

GOING ALONG WITH THE CROWD? THE IMPORTANCE OF GROUP EFFECTS FOR ENVIRONMENTAL DELIBERATIVE MONETARY VALUATION

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Vargas, A., & Diaz, D. (2017). Going along with the crowd? The importance of group effects for environmental deliberative monetary valuation. *Cuadernos de Economía*, *36*(70), 75-94.

Deliberation is expected to enhance the validity and/or the democratic status of stated preference methods. Those objectives are challenged by the potential presence of group effects. Deference to the information publicly announced by others and social pressures to conformity hinder people's ability to express reflective and independent preferences. Through a split sample contingent valuation survey, we tested whether participating in group discussion affects willingness to pay (WTP). We also test for the presence of group effects. Participants in group discussion

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Sugerencia de citación: Vargas, A., & Diaz, D. (2017). Going along with the crowd? The importance of group effects for environmental deliberative monetary valuation. *Cuadernos de Economía*, *36*(70), 75-94. doi: 10.15446/cuad.econ.v36n70.49923.

Este artículo fue recibido el 31 de marzo de 2015, ajustado el 11 de septiembre de 2015 y su publicación aprobada el 15 de octubre de 2015.

stated a higher WTP, and we did not find evidence of group effects. These results are favorable to the deliberative project.

Keywords: Deliberative monetary valuation, social conformity, public participation, willingness to pay.
JEL: Q50, Q51, Q57, D61, D63.

Vargas, A., & Diaz, D. (2017). ¿De acuerdo con el grupo? La importancia de los efectos grupales para la valoración monetaria deliberativa. *Cuadernos de Economía*, *36*(70), 75-94.

La valoración deliberativa ha sido propuesta para mejorar la validez y el estatus democrático de los métodos de preferencias declaradas. La presencia de efectos grupales pone en duda la realización de estos objetivos. Falencias informativas y presiones sociales dificultan la expresión autónoma de preferencias. Se aplicó una encuesta de valoración contingente siguiendo un procedimiento cuasi-experimental con el propósito de estimar el efecto de la deliberación en la DAP y detectar la presencia de efectos grupales. Se observó una mayor DAP para los participantes en deliberación, la cual no estuvo acompañada de efectos grupales. Estos resultados son favorables a la deliberación.

Palabras clave: valoración monetaria deliberativa, conformidad social, participación ciudadana, disponibilidad a pagar.
JEL: Q50, Q51, Q57, D61, D63.

Vargas, A., & Diaz, D. (2017). D'accord avec le groupe ? L'importance des effets groupaux pour l'évaluation monétaire délibérative. *Cuadernos de Economía*, *36*(70), 75-94.

L'évaluation délibérative a été proposée pour améliorer la validité et le statut démocratique des méthodes de préférences déclarées. La présence d'effets groupaux fait douter de la réalisation de ces objectifs. Des erreurs informatives et des pressions sociales compliquent l'expression autonome de préférences. On a utilisé une enquête d'évaluation contingente avec une démarche quasi expérimentale pour évaluer l'effet de la délibération dans la DAP et détecter la présence d'effets groupaux. On observe une plus grande DAP pour les participants en délibération et qui n'a pas été accompagnée d'effets groupaux. Ces résultats sont favorables à la délibération.

Mots-clés : Évaluation monétaire délibérative, conformité sociale, participation citoyenne, disponibilité à payer.
JEL : Q50, Q51, Q57, D61, D63.

Vargas, A., & Diaz, D. (2017). De acordo com o grupo? A importância dos efeitos grupais para a avaliação monetária deliberativa. *Cuadernos de Economía*, *36*(70), 75-94.

A avaliação deliberativa tem sido proposta para melhorar a validade e o status democrático dos métodos de preferências declaradas. A presença de efeitos grupais coloca em dúvida a realização destes objetivos. Falências informativas e pressões sociais dificultam a expressão autônoma de preferências. Foi feita uma pesquisa de avaliação contingente seguindo um procedimento quase-experimental com o propósito de estimar o efeito da deliberação na DAP e detectar a presença de efeitos grupais. Foi observada maior DAP para os participantes em deliberação, a qual não esteve acompanhada de efeitos grupais. Estes resultados são favoráveis para a deliberação.

Palavras-chave: Avaliação monetária deliberativa, conformidade social, participação cidadã, disponibilidade para pagar.
JEL: Q50, Q51, Q57, D61, D63.

INTRODUCTION

Public participation is the process by which public concerns, needs and values are incorporated into governmental decision-making. It is a two way communication which has the overall goal of better decisions that are supported by the public (Creighton, 2005). Although there are plenty of participatory techniques, this paper is concerned with two methods to obtain information about the views and preferences of project stakeholders: contingent valuation (CV) and deliberative monetary valuation (DMV). Although both have the same purpose, which is to elicit people's preferences, the DMV method allows for social interaction among the public while the CV method collects data from individuals in isolation. Both approaches convey to the government the public concerns, needs and values via the measurement of Willingness to Pay (WTP).

The focus of this paper is on the effect that public deliberation has on people's stated WTP, specifically how group discussion influences the WTP stated by the public. Using data collected for an environmental damage assessment study conducted in Colombia during the period 2012-2013, this paper tests whether participants in public deliberation tend to state a different WTP than non-participants, and if public deliberation reduces the variability of WTP, signaling the potential presence of group effects. The reasons to include group discussion into the valuation protocol are examined, making a distinction between those emphasizing the validity of the method and those that are more concerned with the democratic status of the process. The paper is composed by four sections, additional to the introduction. The second discusses the reasons for using a participatory approach to environmental valuation. The third section presents the data and methods used. The fourth discusses the results, and the fifth concludes.

WHY A PARTICIPATORY APPROACH TO ENVIRONMENTAL VALUATION?

Environmental valuation is, by construction, a limited participatory approach; at most it can be catalogued as consultation on an individual basis (OECD, 2006). Environmental valuation is based on the normative principles of welfare economics, according to which the welfare status of society is judged solely by the members of that society; in other words, social rankings of alternatives should be based on individuals' preferences over the alternatives (Bockstael & Freeman III, 2005). In this setting, preferences are treated as exogenous and they are given. If this is so, no public discussion is required.

Two different bodies of literature have recently emerged in which public discussion/ deliberation is part of the valuation process. These could be classified as the analytical and the democratic approach (Lo, 2011). In the analytical view, group processes are a way of enhancing participants' knowledge and understanding of the valuation task, which allows people to have well-formed preferences before

answering the valuation question (Shapansky, Adamowicz & Boxall, 2008). The normative and theoretical foundations of the method are not questioned. In contrast, in the democratic viewpoint, group processes are justified, not as a means to improve method's validity but on normative and legitimacy grounds. It's not about preference aggregation but about deliberation, which is fundamental for legitimacy (Dryzek & Niemeyer, 2010).

Validity Driven Deliberation

Researchers and practitioners main challenge when conducting a valuation exercise is to uncover the environmental preferences that people hold. However, if preferences are unstable then the estimation of economic values will be biased. Non well-formed preferences are likely to be revised through a process of information and learning, and once formed they are consistent with standard theory. Here is where deliberation enters into the scene.

Deliberative valuation protocols have been conceived as a way to improve preference elicitation methods. For Szabo (2011) deliberation is a tool to reduce perverse protest responses arising from respondents' cognitive limitations. Similarly, Macmillan, Philip, Hanley, and Alvarez-Farizo (2002) argue for deliberation on the ground that it is a better way to provide relevant information to the respondent, that it gives the respondent time to think, and that it relaxes the supposedly intimidating atmosphere of individual interviews. In a similar vein Robinson, Clouston, Suh, and Chaloupka (2008) consider group discussion a way to provide individuals with more information and time to better consider their preferences. Following a preference construction line of argument, Lienhoop and Fischer (2009) state that group valuation techniques allow the researcher to build a defensible expression of value (Gregory & Slovic, 1997).

What all these authors have in common is their focus on individual's cognitive capacities and limitations. They also implicitly agree with the atomistic view of a society inhabited by consumers belonging to standard neoclassical economic theory. By contrast, authors pointing to the political dimension of valuation denounce its inadequacy as an instrument for collective choice. Citizens, not consumers, (Sen, 1995) are the relevant actors for environmental decision making in a context in which different conceptions of the common good are debated (Sagoff, 1998).

Democracy Oriented Deliberation

The environment conceived not as a commodity, as is done through the market analogy of standard valuation, but as a common good, raises normative and political concerns that are better addressed by deliberation aided procedures (Vatn, 2009b). According to Vatn (2009a) the common good aspect of the environment calls for procedures where communication and social interaction evoke our social rationality, what is best for us, instead of the individual case of what is best for me, on which

standard methods are built. In other words, valuation methods as value articulating institutions give form and meaning to various social contexts (Vatn, 2009b).

For Lo (2013) the superiority of deliberation is based on its potential to reach decisions without precluding individuals' normative dispositions, meaning that a course of action can be collectively devised even in the face of moral disagreement. If that is the case then valuing the environment through deliberative procedures could be compatible with value pluralism (Lo & Spash, 2013).

Environmental valuation when used for decision making is conceptualized as a technocratic exercise, akin to a discourse which emphasizes the role of the expert rather than the citizen in social problem solving (Dryzek, 2013). According to Bromley (2008), in a world full of uncertainty, rational problem solving requires procedures with which the decision group can work out a reconciliation plan for the multiple and contending expressions regarding what the best thing to do is. Moreover, a decision process founded on deliberation's ideals is not limited to people's preferences but takes note of the reasons supporting such preferences. A legitimate collective decision is not solely grounded on vote counting but on the reasons that citizens give each other to justify their positions (Gutmann & Thompson, 2004). A deliberative process is, therefore, not only rational but amiable to democratic values.

In this sense, participatory and inclusive valuation processes are expected to broaden democracy (Spash, 2007), to achieve more socially just outcomes (Wilson & Howarth, 2002), more ecologically rational decisions (Baber & Bartlett, 2005) and promote greater orientation toward the common good (Smith, 2003). These connections between the procedure and the substance of decisions require that preferences must be amiable to change due to deliberation (Niemeyer & Dryzek, 2007).

Preference transformation through political interaction is at the core of most deliberative democratic theories (Elster, 1997). The reason giving process underpinning deliberation is expected to induce reflection on preferences, eventually leading to its change. According to theories formulated along the lines of Habermas' theory of communicative action (1984), deliberation should produce a convergence of opinions about what is good for society. Consensus on preferences and reasons is expected. By contrast, expanded deliberation theories entertain plural conceptions on the common good and so consensual decision is not demanded as the gold standard for the legitimate resolution of disagreement (Mansbridge *et al*., 2010). Accordingly, some proponents of deliberation for environmental decision making claim that a consensus supported on socially oriented preferences would arise (Vatn, 2005), whereas others see in deliberation the possibility to open the decision-making process to the diversity of values present in society without the need to erase their difference (Lo, 2013; Rodríguez-Labajos & Martínez-Alier, 2013).

In terms of stated WTP, is important to say that most of the justifications for the use of a deliberative approach have a normative character and do not depend on preferences shifting in a particular direction, although some have hypothesized incre-

ments (Dietz, Stern & Dan, 2009) and others reductions (Howarth & Wilson, 2006). In fact, whether or not deliberation should be accompanied by monetary valuation is a matter of debate. Sagoff (1998), for instance, accepts monetary valuation on the basis that WTP figures may be reinterpreted as a fair share or contribution, not welfare losses or gains. In contrast, Vatn (2009b) rejects monetization by adducing non-commensurability of the multiple values characterizing an environmental issue. According to (Lo, 2014; Lo & Spash, 2013), monetary values are not incompatible with value pluralism, and their meaning must be open to interpretation.

On this account, monetary values are just one piece of information the meaning of which cannot be completely understood by reference to itself. In this sense, a deliberative approach does not only look to WTP expressions but pays attention to reasons. For example, an individual who refuses to pay is not necessarily saying that the environment should be left unprotected; he or she may be indicating that he or she does not agree with the proposed course of action.

GROUP EFFECTS

Deliberation is promoted because there is the hope that it will lead people to accurate understandings and sensible solutions to social problems (Schkade, Sunstein & Hastie, 2007). Ideally, participants would express more considered opinions, if thanks to deliberation, they become more interested in, think more carefully about, and learn more about the issue under discussion (Luskin, Fishkin & Jowell, 2002). The assumption here is that people's tendency to conform to the group does not override their capacity for thoughtful and independent decision-making. Note that this is not saying that decisions arrived at in the presence of social pressures are necessarily undesirable. Social pressures are almost inevitable in face-to-face interactions. The question is whether collective decisions are informed by independent and reflective preferences.

If public participation in environmental decision-making is justified in terms of improving decision quality and legitimacy, then it could be said that the analytical approach is more concerned with the former, while the democratic approach with the latter. That is not to imply these two categories are mutually exclusive but to stress what they focus on. However, both view the potential presence of group effects as having important implications.

In a social interaction setting, people's behavior, opinions and preferences could be influenced by others in ways that go beyond learning and reflecting. Informational signals and peer pressure can induce people to go along with the crowd (Sunstein, 2004). Two well-known distortions, what we call here group effects, are the law of group polarization (Sunstein, 2002) and groupthinking (Solomon, 2006). According to the former, group discussion reinforces individuals' pre-deliberative judgments, tending to move the group towards a more extreme position in accordance with individuals' predispositions. That is, if the group starts out to the right it will move further right. Group-thinking occurs when social pressure for conformity

leads to inadequate consideration of arguments, resulting in a consensus formed in the absence of dissenting opinions (Fishkin, 2009).

The presence of polarization or group-thinking is a challenge to the validity of the monetary valuation because preferences expressed during a group discussion process are likely to be biased- that is, they do not reflect the individual's true valuation of the environmental change. These effects also question the democratic claim made by proponents of deliberation. If there is a reliable pattern of group psychology that predicts the movement of opinion then one cannot say that the movement is based on the force of the better argument (Fishkin, 2009).

At this point, it is fair to say that group effects are better conceived as a risk rather than an inevitable outcome of social interaction. We need to focus upon the settings in which such interaction occurs because they shape how deliberation works (Dryzek & Hendriks, 2012). Among the host of potential aspects characterizing a group discussion setting, we focus here on consensus rules: that is if participants are instructed (or not) to arrive at a consensual decision after discussion.

Theorists inspired by Habermas favor the design of deliberative forums in which participants strive to reach a consensus (Soma & Vatn, 2010; Vatn, 2009a), which is the expected outcome if thanks to the exercise of our communicative rationality we have converging conceptions of the common good. Consensus is also the desired and expected result of the give and take of arguments in theories following the public reason ideal formulated by Rawls (Howarth & Wilson, 2006).

Emphasis on consensual decision making contrast with theories for which full consensus is one of various decision making mechanisms, voting included (Fishkin, 2009; Gutmann & Thompson, 2004) and with those that see consensus as unnecessary, unattainable and undesirable (Dryzek, 2000). In a recent application, Lo (2013) shows how deliberation facilitates the support of a course of action without the need to agree on the reasons for it. The WTP is then interpreted as an outcome to improve mutual understanding across a discursive divide.

According to the above, is then possible to integrate aggregative decision rules with deliberation and, in this way, countervail the social pressures and convergent thinking that arise when a group is required to reach a consensus. In other words, non-consensual decision making procedures may be less likely to be distorted by group effects. Finally, it is clear that if the outcome of group discussion are reflective preferences, not a matter of unreasoning conformity, then WTP values elicited after discussion are likely to be superior to those obtained prior to discussion.

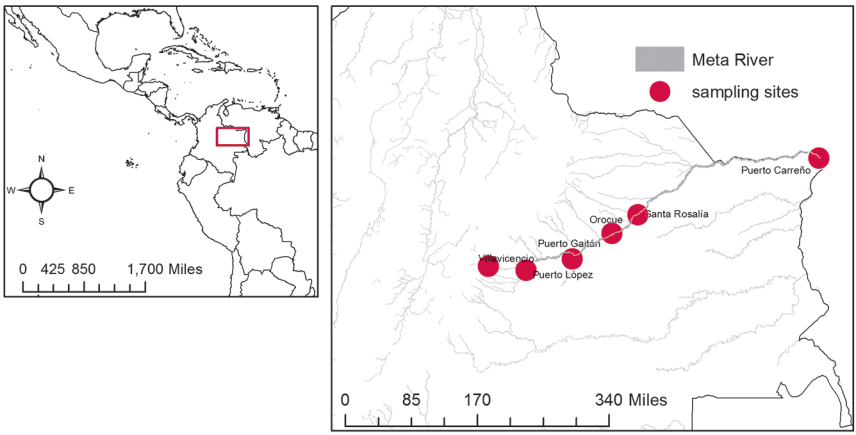
BACKGROUND AND METHODS

Study Area

The Meta River is a major tributary of the Orinoco River in eastern Colombia, South America. It is born by the confluence of the Humea, Guatiquía and Guay-

uriba rivers. It also collects, through a number of tributaries, most of the water descending from the Eastern Andes. These rivers join the Meta River at the left bank from the West. The Meta River flows east-northeastward across the Llanos Orientales plains of Colombia through an ancient geological fault. It forms a 225 km northern boundary with Venezuela down to Puerto Carreño where it flows into the Orinoco River, which in turn flows into the Atlantic Ocean (see Figure 1).

Figure 1.
Study Site



Source: The authors.

The Meta River is 804 kilometers (500 mi) long and its drainage basin is 93,800 square kilometers (36,200 sq. mi). This braided river divides the Colombian Llanos Orientales in two different realms: the western portion on the left is more humid, receives the nutrient-rich sediments from the Andean mountain range, which fertilize soils and other tributaries. The eastern portion, high plain or Altillanura, drains directly into the Orinoco; it has a longer dry season, and soils and surface waters are poor in nutrients.

All the Meta River tributaries descend from the mountains, an area of high precipitation. The Andes Mountains have a very rugged relief, a propitious condition for severe erosion. Forest cover on the mountains used to contain the erosion until the mid-part of the twentieth century when unplanned peasant colonization caused intense deforestation in the mountains. Since then, the Meta River transports increasing load of sediments, and floods on the floodplains during the eight-month wet season.

Because of the abrupt change in gradient as the tributary rivers run down the mountains, most of the eroded material accumulates in the Piedmont area and in the floodplains. River beds fill up rapidly causing shifts in a lateral direction and a braided stream is formed. The clogging-up of river beds also decreases its dis-

charge capacity. Thus, navigation in the Meta River is very limited and the permanent flooding of the adjoining lands during the wet season impedes the possibility of hosting fertile agriculture.

Near the mountains, surface water is abundant, but this is not the case downstream. People rely more on groundwater, which is abundant in the northern part of the river. To the South of the Meta River, in the High Plains or Altillanura, the wells must go deeper to provide sufficient water supply for human and animal consumption.

The River crosses extensive savannahs, forming pastures, estuaries, wetlands, gaps and the so-called "morichales" (swamps), all considered biodiversity-rich ecosystems. The existence of several species of manatee, river dolphins and turtle populations are well documented. A high-level of fish biodiversity, more than two hundred species, has been reported, and this supports artisanal fisheries and recreational fishing activities that are economically important for local people (Lasso *et al*., 2013).

Data and Methods

A contingent valuation survey (CV) was administered to two target groups, the general public and artisanal fishermen. The general public survey (GP) was conducted

Table 1.
Demographic Characteristics

Sample		Environmental attitudes			Socio-demographic variables			
	n	Restriction/1	Contribute/2	Combined/3	Level of formal education	Age	Income (% with USD556/ month or less)/4	Female (%)
General Public (GP)	295	4.04	3.79	3.91	Lower secundary	39.9	69	41
Artisanal Fishermen, no group discussion (AFI)	99	4.46	4.53	4.5	Primary	43.7	79.8	10
Artisanal fishermen, group discussion (AFG)	55	4.41	4.6	4.5	Primary	44.4	78.18	12

/1, /2 and /3 Likert scale rangin from 1 (completely disagree) to (5) completely agree.
/1 The government should restict resource extraction from the river to prevent fish populations from further decrease /2 Is worth contributing with money to protect the region's fauna and forests /3 average over /1 and /2.
/4 Converted to USD dollars using PPP exchange rate for 2012, USDCOP 1,257
Source: The authors.

in six urban areas alongside the river (n = 298) and the fishermen's survey was carried out in the municipality of Puerto Gaitán (n = 155). Respondents from the general public's survey were randomly selected, whereas for the fishermen's survey participants were recruited following a different procedure, as explained in the split-sample section below.

The Contingent Valuation Survey

The questionnaires are made up of four parts. In the first part we asked the respondents for their familiarity with and use of the River. In the second part we provided information about the Meta River and the engineering works aimed at improving its navigability. Through the use of porcupine screens, to reduce flow and trap sediments and by dredging, the project expects to keep the waterway navigable all year round instead of only for eight months, which is the current situation.

The third part introduced the valuation scenario and the willingness to pay question. Respondents were informed about the potential environmental impacts of the project, specifically: a) the decrease in food availability for commercially valuable fish species (i.e. *Brachiplatystoma vailantii*) due to the disturbances caused by dredging on benthic habitats; b) lateral flow alteration that can lead to modified floodplain soils, affecting farming activities; and c) dredging and lateral flow alteration that lead to changes in key ecosystems for fish species' reproduction cycles. We made emphasis on those species with greater commercial value. The valuation scenario consisted of a habitat compensation plan aimed at reducing the environmental damage caused by the project, in concordance with the no net loss principle. Because the project was only in its initial phase, it was not possible to present estimates about the scale of the damage and restoration requirements.

The payment card format was used as the elicitation method. This format is superior to the open ended and the dichotomous formats by achieving a better balance between efficiency and reliability (Moore, Holmes & Bell, 2011). Also, because referendum mechanisms are not usual in Colombia, the dichotomous format cannot be defended in terms of incentive compatibility (Zhongmin, Loomis, Zhiqiang & Hamaura, 2006). The electricity bill was used as a payment vehicle to collect a national tax that is supposed to finance the compensation program. The fourth part of the questionnaire contained background questions.

At this point, it is important to note that the hypothetical nature of the intended behavior questions spurred an important and non-settled debate on the validity and usefulness of contingent valuation studies (Haab, Interis, Petrolia & Whitehead, 2013; Hausman, 2012). A common criticism is that people's answers to the valuation question are different from what they really think because there is actual payment to be made. Nonetheless, hypothetical questions are of widespread use in realms beyond non-market valuation because they are intended to predict peo-

ple's behavior or to assess public support for potential policy interventions. In this sense, Carson and Groves (2011) have recently argued that the issue is not whether the questions are hypothetical but if respondents believe their responses will affect something they care about; the argument is that it is consequentiality is necessary to produce meaningful information from the answers. In this case, the issue under discussion is of wide public concern in the area of study given the Meta River's importance for freight and passenger transport as well as for fishing. In addition, the survey included the logo of the national government agency that had commissioned the study and respondents were informed that the results of the survey were to be used by policy makers when deciding how to improve the River's navigability conditions. Notwithstanding the measures taken to signal consequentiality, we cannot test whether these measures were effective or not: something that constitutes a limitation of our study.

The same survey was administered to all survey respondents, but as is explained in the next section, we conducted a split sample (quasi) experiment with the fishermen's sample. For the general population's sample we followed the standard face-to-face approach- that is, the survey was administered to randomly selected individuals on an individual basis.

The Split-Sample Procedure

The fishermen sample was divided into two subsamples. In the first sample (AFI) (n = 100) respondents completed the questionnaire using the standard face-to-face approach. Individuals were selected using the snow sampling technique, given the lack of sampling frame from which to make a random selection of fishermen. In the second sample (AFG) (n = 55) respondents completed the questionnaire after going through a group discussion process. Participants were invited by the local artisanal fishermen's association. The group discussion protocol was designed to deliver information to participants and to encourage discussion among them. The 55 participants were randomly assigned to one of six groups. In each group the facilitator was instructed to present the project information, to clarify facts about the project and to guide participant discussion without stating his/her personal opinions.

The meeting was divided into three sessions. In the first, the facilitator presented information about the project, what the valuation scenario included, and answered participants' questions. Participants had the opportunity to freely state their opinions, to share information and local knowledge, and to engage in discussion. In other words, the protocol was intended to promote social interaction in general. After that, each participant answered the valuation question. Responses were individual and anonymous, although the physical characteristics of the meeting place did not prevent interaction among participants. This was followed by a final round of discussion, at the end of which participants were asked if they would like to revise their answer to the valuation question. Only four decided to do so.

Data analysis Methods

As stated in the last section, the CV survey was administered to three groups: the general public (GP), individual artisanal fishermen (AFI) and group discussion artisanal fishermen (AFG). Our aim is twofold, the first is to test the effect of group discussion on the mean WTP, and the second is to test for the presence of group effects.

To test the effect of deliberation on the WTP we ran the following regression:

$$\ln WTP_i = \delta group_i + X_i^{'}\beta + \varepsilon_i \quad (1)$$

Where ln WTP_i is the natural logarithm of the WTP stated by individual *i*, *group* is a dummy variable that takes the value of 1 for individuals in the AFG sample, X_i' is a vector of control variables, and ε_i is the error term. If group discussion participants state a higher WTP then $\delta > 0$. The AFG and AFI samples were used.

To discern the presence of group effects, three different tests were conducted. First, if fishermen have a tendency to state a higher WTP than the general public, due to livelihood reasons, then $\gamma > 0$in equation (2). The *Fishermen* variable takes the value of 1 if individual *i* is a fisherman and 0 otherwise.

$$\ln WTP_i = \gamma Fisherman_i + X_i^{'}\beta + \varepsilon_i \quad (2)$$

This test intends to capture fishermen's pre-deliberative inclinations. If there is evidence that they tend to state a higher WTP than the general public, and $\delta > 0$ in equation (1), then polarization could not be ruled out. GP and AFI samples were used.

Equations (1) and (2) were estimated using the interval data regression model suggested by Cameron and Huppert (1989). The next two tests are based on the intra and inter group WTP variability. The intra-group WTP variability is used to test if there is convergence on a choice due to idiosyncratic characteristics of the small discussion group, i.e. social pressures, rather than a true social value. For its part, inter-group variability reflects the convergence that is related to common characteristics of the decision problem. Following Dietz *et al.* (2009), artificial groups were created from the AFI sample in order to replicate the number and size of real groups. Three sets of six artificial groups were created using random selection with no replacement.

Intra-group convergence test. The variance of stated WTP values within real groups is compared with the variance of stated WTP in the random groups[1] by means of a Wilcoxon rank-sum test. The mid-point interval value was used as the WTP measure.

[1] The WTP variance is calculated for each group and then the mean value of real groups variances is compared to that of the artificial ones.

Inter-group convergence test. For each group the mean WTP[2] is calculated, then that value is used to compute the real groups' WTP variance. The same procedure is applied to the artificial groups. Variances are then compared using the median Brown-Forsythe test. We used the WTP natural logarithm to calculate group means.

RESULTS

WTP Change

Participants in deliberation tended to state a higher WTP than not participants, see Table 2, column 1. Unconditional mean and median WTP for survey only respondents was USD3.23 and USD1.9, while for respondents participating in group discussions the mean WTP was USD6.09 and the median was USD4.29. In the literature, some studies have not found a statistically significant impact of deliberation on welfare measures (Dietz *et al*., 2009; Shapansky *et al*., 2008; Szabo, 2011). Others have found mixed results, WTP for some attributes increase and for others decrease (Álvarez-Farizo, Hanley, Barberán & Lázaro, 2007; Robinson *et al.*, 2008), while Kenter, Hyde, Christie and Fazey (2011) claim that in an exercise after deliberation participants exhibited lexicographic preferences, that is, they became reluctant to trade the environment for money.

Table 2.
Regressions

	1	2
Group	0.57*** (0.129)	
Fisherman		0,014 (0.151)
Obs.	150	377
ll	-715	-259,5
chi^2	10,97	105,9
sigma	121	0,67

Standard errors in parenthesis ***p < 0.01, **p < 0.05, *p < 0.1.
Age, education level income, environmental attitudes and enumerator dummies included as control variables.
Source: The authors.

Group Effects

Column 2 of Table 2 shows that fisherman do not seem to have a predisposition towards a greater WTP than the general public. Furthermore, unconditional mean WTP for the GP sample (USD3.34) is not statistically different that the one for the

[2] For each group the mean lnWTP is calculated. The variance of group means between real groups is compared to that of the artificial ones.

AFI sample (USD3.23), see Table 3. This means that there is no evidence of fishermen having a particular pre-deliberative disposition that could be exacerbated by deliberation.

Table 3.
Mean and Median WTP (USD/month)

	GP		AFI		AFG	
Mean	3,34		3,23		6,09	
CI, 95%	2,90	3,84	2,61	3,93	5,17	6,94
Median	1,86		1,90		4,29	
CI, 95%	1,60	2,18	1,48	2,39	3,52	5,13

Bootstrap confidence intervals.
Source: The authors.

With regards to group effects, both tests suggest that the higher WTP was not driven by social pressures, see Table 4. Results for the intra-group convergence test reveal that the within variance in experienced preferences of actual groups is not statistically different from that of randomly aggregated groups. For its part, the inter-group test shows that convergence due to particular characteristics of the group discussion protocol, common to all deliberating groups, did not happen.

Table 4.
WTP Variability

	Real (n = 6)	Artificial (n = 18)	Difference
Intra-group/1	8.35 (5.48)	9.72 (6.94)	Non-significative/3
Inter- group/2	8.45 (0.7)	7.5 (0.4)	Non-significative/4

/l Average of within group WTP variances.
/2 Standard deviation of average In WTP.
/3 Wilcoxon rank-sum.
/4 Brown-Forshyte, mediana.
Source: The authors.

DISCUSSION

Results of the quasi-experimental approach employed in this exercise suggest that the valuation setting is not neutral. It matters whether preferences are elicited following the traditional approach or through a group discussion process. Furthermore, our results seem to suggest that WTP changes were not driven by social pressures to agree.

Increasing WTP in the context of this exercise signals a greater willingness to cooperate with the provision of the public good in question. Explanations following the rational choice theory tradition point to changes in the basis for individual calculation of utility. The personal benefits and costs of following a particular action are modified by social interaction. As an alternative to rational choice based explanations, Vatn (2009a) affirms that deliberative procedures change the meaning or the rationale of the decision situation, and, consequently, signal to participants what the right thing to do is in the social context in which they are situated. It is, therefore, not about the best but about the right action.

In this paper we cannot settle the debate on empirical grounds, although we can say that in this particular case the indication of a higher social value without clear evidence of group effects is favorable to the deliberative project. If we are correct, then the proper WTP value for informing decision-making is the one obtained after deliberation.

CONCLUSION

In this paper, we have discussed the importance of group effects for deliberative monetary valuation and have provided evidence that deliberation aided protocols can be implemented without being undermined by effects from social pressures. We found that stated WTP was affected by deliberation, a result that easily fits with proposals based on the theory of deliberative democracy.

While the small sample size on which this exercise is based prevents us for making generalizations, we believe that our results have important implications for policy and decision makers in an era in which public participation is being advocated as a means to improve the quality and democratic content of environmental decision-making. The participatory demands pose several challenges for the environmental valuation practice. First, they compel the researchers and the authorities commissioning a valuation study to think clearly about the democratic ideals supporting a decision mechanism. Second, group process dynamics can undermine the quality and democratic objectives upon which they were justified. Third, group effects can be averted, and their occurrence is likely to be conditional on the deliberative protocol. In this particular case, deliberating groups were not instructed to reach a consensus, rather participants stated their WTP individually and anonymously.

This research represents a preliminary step toward comparing different participatory approaches to environmental valuation. Additional research is needed to assess the importance of group effects and their implications for the quality and democratic characteristics of different protocols. An important issue that has not been addressed here but is of particular relevance for developing countries is that of the power and coercion imbalances that are built into participatory methods.

For standard valuation methods, the distribution of gains and losses of a particular decision are related to income differences, while deliberative approaches to the ability to "say" can be as unevenly distributed as the ability to pay.

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