

Agreeing to pay under value disagreement:
Reconceptualising preference transformation in terms of pluralism with
evidence from small-group deliberations on climate change

Citation:

*Lo, A. Y. (2013) Agreeing to pay under value disagreement: Reconceptualising preference transformation in terms of pluralism with evidence from small-group deliberations on climate change. **Ecological Economics**, 87, pp. 84-94*

DOI: 10.1016/j.ecolecon.2012.12.014

Publisher version available from the authors: alexloyh@hku.hk

Abstract

Plural values contribute to multiple arrays of expressed preferences. Conventionally, preference convergence towards consensus among initially disagreeing decision makers is understood in terms of diminishing value differences. A cogent account of consensual decision that respects non-diminishing value plurality is lacking. Instead there is a theoretic expectation for categorical consistency between subjective values and expressed preferences. Valuing agents in social interaction are expected to indicate identical preference orderings only if they hold correspondingly identical categories of values. This expectation precludes meaningful conceptualization of preference convergence under divisive normative dispositions. An alternative framework is proposed and illustrated by results from a designed deliberative forum on Australia's climate change policy. Data were analyzed based on Q methodology. Results shows that small-group deliberations enabled effective communication between distinctive subjective positions and broadened understandings between individuals. While a consensual decision gained progress, no identified value discourse diminished below a significant degree. Observed changes in values did not run parallel to the converging preferences, suggesting a decline in value-preference consistency. These changes nonetheless are amenable to the principle of value pluralism. An alternative rationality concept is needed to account for this moral ideal within economics.

Keywords: value pluralism; preference transformation; deliberative monetary valuation; communicative rationality; public deliberation; climate change

1. Introduction

Communication can facilitate reciprocal understanding and recognition between individuals. Non-strategic cooperation under disputed values and beliefs¹ involves a form of rationality prevalent in the communicative practice of everyday life. The underlying rationality criteria could fruitfully inform articulation of plural values and reconstruction of the theory of environmental valuation towards value pluralism. Yet the idea remains a matter of normative advocacy in ecological economics in need of more conceptual coherence and empirical investigation.

Individuals have different normative dispositions concerning the allocation and distribution of public resources across sectors of society. Mainstream economists brush aside any category distinction and hold that such dispositions are reducible to a single metric, whereas ecological economists embrace the notion of value pluralism in an effort to reveal the multiple facets of environmental values. Each of the two economic traditions has developed new approaches of environmental valuation in the wake of the deliberative turn (Zografos and Howarth, 2008; Lo and Spash, in press). They are nevertheless found to share a deterministic presupposition that precludes recognition of the rationality of informed and respectful communication which may

¹ This paper focuses on the differences in values, beliefs and preferences *between* individuals. Values are understood as personal judgements or dispositions as to what is right or desirable, and assumed to be a fundamental subjective construct preceding formation of preference, which refers to a ranking of alternatives and is seen as the immediate precursor of personal choices. Neoclassical economics assumes the otherwise that preference precedes value. In this paper values and preferences are treated as two qualitatively different parameters, without addressing their cognitive sequence.

seemingly imply the 'failure' of individuals to achieve defined moral ends.

In mainstream economics the individual is seen as a utility maximizer holding consistent, complete, and transient preference (Gowdy, 2004, 2007; Spash, 2007; van den Bergh, 1996). The ideal economic person would make choices as a rational consumer exclusively pursuing material self-interest. Preference utilitarianism constitutes an implicit value theory of economics (O'Neil et al., 2008; Söderbaum, 2008). Based on these assumptions, economists measure the value of environmental goods and services in monetary terms by constructing hypothetical markets or making inference from a surrogate market. In the valuation process, environmental values are treated as reducible to consumer preferences (Sagoff, 1988; Vадnjal and O'Connor, 1994; Vatn, 2005). Preference is elicited in ways that the implicit value theory permits, typically in the form of willingness-to-pay (WTP) or willingness-to-accept (WTA). Expressed WTP/WTA is expected to be consistent with the utilitarian conception of values. Any deviation from this assumption is regarded as irrational.

Ecological economics rests upon a different set of assumptions in contrast to the distorted picture of human behaviours and ethics depicted by the neoclassical approach (Gowdy, 2007; Lo, 2012; O'Connor, 2000; Spash, 2012; van den Bergh et al., 2000; Vatn, 2009). Within the field there is increasing advocacy of deliberative research methods in an effort to broaden the scope of economics research (Christie et

al., 2012; Kesting, 2010; Lennox et al., 2011; Norgaard, 2007; Zografos and Howarth, 2008) and ‘moralize’ preferences (Spash, 2007). Multidisciplinary efforts contributed to this deliberative turn², which has produced alternative principles of social cooperation compatible with the concept of sustainability. Many practitioners are committed to the ethical and/or behavioural premises at variation with the neoclassical paradigm of personhood.

However, these alternatives do not constitute a defensible account of value pluralism. Lo and Spash (in press) have noted a remarkable division of practice in the methodological development of deliberative monetary valuation (DMV), which involves the use of deliberative methods in environmental valuation to support social construction and reconstruction of preference. Some DMV practitioners attempt to move economics away from value monism by introducing concepts of social interaction to address the failed neoclassical assumption of isolated individuals. Problems arise, however, as the reorientation of the established ethical or behavioural premises is predisposed to a particular system of values and preferences. Consequently these accounts of environmental valuation are caught in a conceptual incoherence of being compatible with tendency for diminishing value plurality³.

² The deliberative turn has been observed in many other fields, notably political science (Dryzek, 2000). The theoretical foundation can be attributed to the pioneering work of John Dewey (1923) and Jürgen Habermas (1984).

³ Value plurality means that a larger number of different types of values exists, whereas pluralism is a normative principle that allows for an appreciation of plurality.

I shall argue that the conceptual resources essential to develop a pluralistic account of economics need not be sought from the antithesis of neoclassical economics. For pluralism requires the individual be able to seek terms of cooperation that opponents accept. A model of rationality is required which moves beyond the present focus on the integrity of personhood and toward the capacity for reciprocal understanding and interpersonal coordination of actions. The concept of ‘communicative rationality’ could provide a basic theoretical structure for this endeavour.

This paper illustrates the idea and sheds light on a critical normative aspect of the prospective pluralistic economics. Specifically, it addresses the lack of a defensible account for value pluralism in the conceptual development of deliberative valuation methods. A retrospective interpretative framework is proposed for the analysis of deliberative WTP and policy recommendations.

An empirical study of DMV is presented using data from a designed deliberative forum on Australia’s climate policy. Climate policy was chosen as the theme of the forum because it proved to be a highly contentious issue in Australia due to disappointing changes of official political commitments, motivating the divisive debates in the community at the time of research. This justified the use of the deliberative approach which presumes the existence of irreducible conflicts in values

and beliefs (Dryzek, 2000; Lo, 2011a). The data are analysed following the basic procedures of 'Q methodology' to ascertain the changes in values and beliefs as a result of deliberation. To begin with, I elaborate on an established epistemic premise that poses challenge to the endeavour of value pluralism.

2. Methodological requirements of value pluralism

2.1 Economics in search of consistent expression of values and preferences

Both traditions of economics seek to strengthen the internal consistency between the expressed preference and subjective state of the individual. That is, what they do or intend to do (means) should accord with what their desires or aspirations dictate (ends). Substantive theories and techniques have been developed to attain desired ends at the expense of their alternatives.

Mainstream economists, along with some decision scientists, downplay the rationality of respondents failing to take utilitarian considerations as theory predicts (Lo, 2011a). There is an expectation that expressed preference should accord with the implicit economic theory of value or a modified one based on behavioural psychological models (Powe, 2007). Non-utilitarian preferences in group processes are then deemed to be an erred expression in need of correction (Bateman et al., 2008; Hanley and Shogren, 2005). Decision support to modify preferences is seen as

necessary when people make choice in ways that fail to address their values - defined mainly in utilitarian terms (Gregory et al., 1993). Thus the favoured mode of DMV has been in the form of student tutorial (Gregory et al., 1993) or educational workshop (Urama and Hodge, 2006).

For example MacMillan et al. (2002, 2006) and Álvarez-Farizo et al. (2009) propose a ‘market stall’ approach of DMV predicated upon the idea that consumers do interact in markets rather than collect purchases in isolation. Participants are encouraged to make choices as a consumer and adopt the utility maximization rules, as in Gregory et al. (1993). To Zoltán (2011), DMV is a tool to reduce protest response to conform to standard economic theory. Clearly the objective has been to improve validity for an exchange value (Spash, 2007). Lo and Spash (in press) describe these attempts as “preference economisation”, which pursues consistency between stated WTP and the standard economic theory of value.

Ecological economists favour a different set of principles by which expressed preference can be rendered rational. In general there is an affinity for a citizen frame based on the view that respondents making judgements on environmental issues should be enabled to articulate public-interested or even impartial preferences (Costanza, 2000; Pelletier, 2010; Sagoff, 1988, 1998; Vatn, 2009; Wilson and Howarth, 2002). This approach is built upon an alternative theory of value blending

multiple philosophical accounts, of which the more influential are Sagoff's (1988) 'citizens values' thesis and John Rawls's (1971) theory of justice. There are variations as to which account is more plausible, but these have not precluded the evolution of a value theory and behavioural model that explicitly recognize environmental values and the well-being of the larger society and future generations (Douai, 2009; Gowdy, 2004; Söderbaum, 2008).

Innovative methods for preference elicitation have been proposed to fulfil this moral commitment. Plottu and Plottu (2007, p. 56), for example, develop a concept known as 'social cost-benefit analysis II and III', which is designed to support decisions that 'transcend purely individual horizon to symbolize collective and patrimonial stakes'. To elicit 'social WTP' Mill et al. (2007) modify the contingent valuation method by asking respondents to adopt a 'social/citizen viewpoint'. These attempts affirm the relevance and importance of collective values and, on this basis, develop conceptually (and ethically) consistent techniques. As Gasparatos (2010) suggests, the choice of evaluation tool should be consistent with the type of values being assessed; for example DMV is appropriate when altruistic values are concerned.

Attempts to advance the alternative theory of value characterize the 'preference moralization' approach of DMV (Lo and Spash, in press). This approach involves isolation of non-utilitarian or public-interested considerations by engaging

respondents in group deliberations (Brown et al., 1995; Howarth and Wilson, 2006; Sagoff, 1998; Soma and Vatn, 2010). Advocates believe that deliberation is a proper site for valuation as people make judgements about environmental issues in the capacity of 'citizen' and citizens exchange opinions and deliberate in public arenas (Sagoff, 1988).

For example, Wilson and Howarth's (2002) DMV approach is based on Rawls's theory of justice and seeks to encourage individual participants to re-shape preferences in terms of consensus values for ecosystem goods and services. Construction of citizen-type preferences is treated as an end itself, whereas deliberation as a means to induce the congenial value positions, e.g. rights-based values. This approach presupposes a singular conception of values that could bring about a corresponding alignment of expressed preferences conducive to social cooperation. The use of deliberative methods is instrumental, i.e. experimentally creating a controlled public space in order to motivate pro-environmental behaviour. There is, however, counter-evidence suggesting that deliberation may induce environmental sceptical responses (Dietz et al., 2009). More importantly, contrary to the expectations of its advocates, this alternative approach is conceptually compatible with diminishing plurality of values (Lo and Spash, in press).

2.2 Limited potential for value pluralism

Both of the two economic traditions have a substantive moral foundation upon which a set of theories and methodological principles is established to guide the transition toward an ideal social state which is seen as a favoured alternative to the other's model. A common methodological intent is to induce or modify individuals' preferences so as to reduce the moral differences among themselves, which are likely to impede consensual coordination of their social or political actions toward comprehensive social changes. Outcomes of the coordination are expected to accord exclusively with the behavioural prescriptions of the respective favoured moral ends (e.g. citizen-type responses). An effective coordination then requires isolation from alternative prescriptions (e.g. consumer-type responses).

The required transformation of preference and behaviour connotes a negative relationship between the possibility of conscious and non-coercive cooperation between actors of the society and the diversity of values attributed to them (Lo, in press). Greater diversity raises the costs of isolation, rendering the coordination less effective. This tendency characterizes the deliberative turn in ecological economics (Lo and Spash, in press).

Deliberative research methods have been introduced to advance the integrity of personhood in terms of categorical consistency between one's own subjective

values and expressed preferences. There is an expectation that individuals in interaction should indicate identical preference orders only if they hold correspondingly identical categories of values. Strengthening this causal relation, however, precludes non-strategic cooperation and production of consensual collective decision in pluralist societies, because conflicts between individual actors are effectively encouraged to persist. Given that any tendency for convergence on preferences must evolve in parallel to a corresponding convergence on values, normative uniformity becomes a structural condition for a sensible agreement on a course of action to issue from a group of informed and rational individuals who express different private desires or aspirations. Should their individual actions, or expressed support to an action, be systematically coordinated and oriented to their compatible moral ends exclusively, agreement on a collective action could be reached only if the interaction is geared toward morally undifferentiable considerations. Consequently, either agreed actions are obstructed (Figure 1), or the state of value pluralism is not attained (Figure 2). These two possibilities are illustrated with the example of carbon pricing which is the main theme of the case study presented later in this paper.

Figures 1 and 2 About Here

The emphasis on the value-preference consistency may constrain the capacity of economists to reconcile the seemingly competing goals of deriving consensual actions and attaining the state of value pluralism. As economics is turning its focus from the putative dominance of social isolates to the realities of collective life, the ways in which social interactions alter the subjective landscape of the individual's internal world as a process of communicative rationalization need clarifications in order to make the theory of social cooperation compatible with the principle of pluralism. Most of the previous attempts, however, overlook the nature of irreducible conflicts.

Common to both traditions of economics is the vision that rationality is proprietary property of individual decision makers; it should be sought from only the ways in which the individual makes sense of the world and behaves consistently. Social interaction is then regarded as more of a 'transformational intervention' (Brouwer et al., 1999, p. 342) than a rationalization process when it is believed to create disruptions to the value-preference consistency, such as making a climate sceptic to express support to greenhouse gas (GHG) mitigation or asking a citizen-type respondent to submit consumer preference. The latter constitutes a 'category mistake' as articulated by Sagoff (1988, 1998) who advocates DMV as a better

approach to elicit preference in consonance with a singular conception of values. The lack of consistency is generally considered as a sign of irrational response or mistaken observation. The common strategy of driving desired behavioural changes precludes a theory of social cooperation that is amenable to ever growing diversity of values⁴. Maintaining value plurality comes into conflict with narrowing down the range of expressed preferences that complicates cooperation so long as a causal relationship between values and preferences is taken for granted⁵.

Unreflectively pursuing such consistency threatens to exhaust our capacity to recognize and conceptualize auspices and conditions of cooperative actions that are socially and rationally coordinated in the circumstance of deep value conflict. Non-strategic cognitive motivations intrinsic to communication are out of range. Current models of economic rationality miss the richness of human motivations that drive communication. An alternative concept of rationality is needed to make economics amenable to the principle of value pluralism while creating capacity for cooperative actions. This endeavour may benefit from the notion of communicative rationality (Habermas, 1984) which is introduced in the next section.

⁴ When people in social interaction are characterized by an increasing number of subjective dispositions, they become subject to a broader range of behavioural influences from each other. Reflection upon preference and modification of behaviour are more likely to occur. The higher likelihood of reconsideration makes the required consistency harder to attain to the extent in which values are more deeply held and harder to change than preference or behavior (otherwise the endeavor of value pluralism would lose importance).

⁵ This is not to deny the existence of such causal relationship, but to suggest that further enhancement of such relationship needs not be seen as an imperative of research into environmental values.

2.3 Communicative rationality for a pluralistic economics

A theory of social cooperation specifies the conditions on which actors coordinate their choices or behaviours in line with agreed social responses. In this regard the main problem of economics is not primarily attributed to its utilitarian, rational-choice assumptions, but the presupposition of an instrumental relation that precludes conceptualizing convergence of preferences while values remain diverged. Thus a pluralistic account for economics does not solely rest upon an alternative to utilitarian ethics but an alternative to instrumental rationality, such as communicative rationality⁶.

According to Habermas (1984), actions of individuals involved in social interaction are coordinated through acts of communication directed toward inter-subjective understanding. They pursue their individual goals under the condition that they can harmonize their plans of action with each other on the basis of having, or coming to have, a common understanding of the situation they are in (Habermas, 1984, p. 285). This conception is called communicative rationality, which can be defined as the extent to which action is characterized by the reflective understanding of competent actors (Dryzek, 1990). Communicative action is oriented not to utility

⁶ Nevertheless it can be compatible with utilitarian ethics and instrumental rationality provided that the latter are justified in a communicatively rational way. This means such an economics does not necessarily preclude certain normative prescriptions of neoclassical economics.

maximization nor impartiality, but a creative search for ‘generalizable interests’.

Communicative action is coordinated through discussion and socialization of individuals. These interactive processes not merely allow expression of perspectives, but more importantly create motivation toward cognitive consensus manifested in the participants’ desires for their perspectives to have an impact on others (Warren, 1995). The idealized conversation is characterized by the intention and capability of the interlocutors to discover generalizable interests through speaking and listening to each other. In communicative action a speaker seeks to rationally motivate a hearer to accept her validity claim under no forces of coercion, manipulation, deception and self-deception. They are communicatively competent and free to engage in checking and reciprocally reversing perspectives in search of reflective assent.

Communicative rationality is defined in terms of communicative motivation and impact, rather than the expected consequences of the validity claim. It depends on the hearer realizing that the action of accepting the validity claim is compatible with the knowledge, norms, principles, or rules of social life that have received their recognition. Speech plays a role of cognitively reconciling the relations that situate us differently in the world. Discussion can then raise the likelihood of enhancements in inter-subjective understanding, shared knowledge, and mutual trust. Cooperative action is rational to the extent that our differently reasoned interests or perspectives

can be generalized to make sense of one another.

Generalization connects one point to another without displacing it. Cooperative action that is communicatively coordinated through a creative search for generalizable interests *does not* require reduction or expansion of one or more discourses⁷. Agreement or convergence on subjective values is not a requirement of convergence of expressed preferences and selection of mutually acceptable options. This sort of cooperative action is termed ‘workable agreement’, which involves individuals agreeing on a course of action while disagreeing on reasons that support it (Dryzek, 2000).

Communication is a key aspect of economic life largely unrecognized in economics beyond game-theoretic formulations (Kesting, 2010). A promising pluralistic account for economics will gain strengths by associating with the concept of communicative rationality whose normative validity and explanatory power increase with diversity of values. Identifying generalizable interests is important when the structural components of conflicting discourses can only be ‘bridged’ but not reduced to each other. When competent actors are motivated to seek recognition across discursive divide and enter into a cognitive consensus, collective process of

⁷ Discourse refers to a set of categories and concepts embodying specific assumptions, judgments, contentions, dispositions, and capabilities (Dryzek and Niemeyer, 2008). Subjective values and beliefs are key elements of discourse and can be solicited to approximate political discourses (Dryzek and Niemeyer, 2006). Although I refer to ‘subjective value’ and ‘discourse’ interchangeably, actual political discourses typically contain a more complex set of meanings and prescriptions than the non-exhaustive accounts that are presented and labeled as ‘subjective value’ in this paper .

resource allocation or distribution is geared toward production of workable agreement. Affirmative outcome is interpreted not as a product of utilitarian calculations but in terms of the ways in which such considerations are articulated, represented and addressed to the non-utilitarian world; therefore it might be explained in terms common to utilitarian and non-utilitarian considerations. The use of language in economic life is a basic analytical unit of pluralistic economics. Scholarly inquiries should focus on the reciprocal speech acts of generalization of interests on the part of economic actors.

Lo and Spash (in press) suggest that DMV should aim for workable agreement and adopt a different interpretation of stated monetary value. In DMV the valuing agents seek mutually acceptable solutions to issues such as the use of a pricing mechanism, the format and level of payment, and allocation of raised funds. There is no necessity of predefining the stated value as an economic construct. Consensual decision on WTP⁸ is desired, but unanimous consensus is not deemed to be an imperative. Nor is transformation of subjective values a condition. Rather, it is understood as enhancement of sharing of subjective values without erasing their moral differences. In that case, cognitive engagements in subjective values on the part of the deliberating individuals fluctuate, yet globally producing no net change in

⁸ Four types of WTP are identified by Spash (2007). Two of them are more consistent with the concepts developed here than the other two, but none can be completely excluded.

group outcome. To illustrate, Table 1 shows the changes in value sets of two hypothetical individuals. After deliberation the individuals become more sympathetic to each other's position (levels of engagement increase from 0 – 50). Mathematically these movements cancel out each other, producing a combined effect of no net change (the average levels of engagement remain 50). A workable agreement involves this sort of sharing of values coupled with convergence on expressed preferences. It is based on enhancing reciprocity which goes with some degree of diversity retained.

Table 1 About Here

This idea is illustrated with a case study of small-group deliberations. Data were collected from a designed deliberative forum about the carbon pricing policy of Australia and analysed to ascertain the impacts of deliberation. The research investigates the extent in which the choice of carbon pricing mechanism and the stated values can be understood in terms of workable agreement. The next section describes the background of the case study and the design of the deliberative forum, followed by the method of analysis.

3. Australia's Carbon Pricing Plans and Public Concerns

In 2008, the Australian Government officially proposed a national emission trading scheme (ETS), (Australian Government, 2008). Lacking support from the Green and Liberal parties, the ETS was not passed by the Senate in December 2009. In April 2010 the Government decided to delay further attempts at introduction of an ETS. Kevin Rudd was forced to step down as Prime Minister partly for his decision to defer the ETS. The Leader of the Opposition, who opposed carbon pricing, almost won the ensuing federal election. The incumbent Prime Minister, Julia Gillard, managed to form a minority government. In July 2011, the Gillard Government released the “Clean Energy Plan” (CEP) including elements of a carbon tax (Australian Government, 2011). It is however merely a short prelude to an ETS (Lo and Spash, 2012; Spash and Lo, 2012).

Both the ETS and the CEP encountered substantial legislative hurdles, fuelled by the rising public concerns about the economic impacts of radical climate actions. According to the Lowy Institute Poll (Hanson, 2008, 2010), in 2006 68% of Australians agreed that global warming was a serious and pressing problem and immediate actions were needed, regardless of the significance of the costs. These figures contracted to 60% of respondents in 2008, 48% in 2009 and 46% in 2010 (Hanson 2010, p. 14). About 7% of respondents did not accept actions that might put the economy at risk and would only support actions after general public and political

consensus was reached about the negative impacts of global warming. Approximately 8% (2008) and 13% of respondents (both 2009 and 2010) shared this view. The majority of the Australian public (52%) were willing to pay no more than \$20 per month on electricity bills to tackle climate change (Hanson, 2008). About 19% would pay more than that but 21% were not prepared to pay.

In Australia there is a continuing struggle over the priority of climate protection in relation to economic development, and over emission trading vs. carbon tax. In July 2010, Gillard had called for a high-profile “citizens’ assembly” as part of her election promise to seek community consensus on a GHG mitigation policy⁹. The present study is based on a similar initiative independently designed and conducted one week after Gillard’s announcement (and one year before announcement of the CEP).

4. Study Design

4.1 A citizens deliberation on carbon pricing policy

A deliberative workshop was held in the CSIRO Discovery Centre in Canberra in 31st July 2010. Participants included twenty ordinary citizens from Australian Capital Territory and four from New South Wales. Participant selection was mainly based on

⁹ However, less than three months later, Julia Gillard announced withdrawal of the idea of citizens assembly in favour of a multiparty climate change committee.

perspectives about emission trading and its alternatives expressed in a preliminary survey administered through email. They were involved in a series of group discussions on carbon pricing and clean energy financing issues. Practical objectives were to evaluate current government efforts, consider the future of Australian emission mitigation policy and assess its potential economic implications. The workshop comprised four expert presentations on relevant topics, which included the science of climate change, the economics of climate change and policy implications, international climate politics, and the economics of emission trading and carbon tax.

Group discussions included three sessions. The first session focused on ‘Concern about climate change’, where the participants defined the problem at hand and expressed their views about general issues, such as Australia’s responsibility in greenhouse gas reduction, and relative importance of emission mitigation. The theme of the second session was ‘Carbon pricing’, immediately following the expert session on emission trading. The discussion explored the merits of the four possible carbon pricing arrangements, namely, emission trading, carbon tax, voluntary carbon offsetting, and no action (‘no carbon pricing on human activities is needed’). In the third session, the participants considered a range of WTP issues under the theme of ‘Financing low-emission energy technologies’. This session involved a focused discussion on their willingness to financially contribute to research and development

of low-emission energy technologies. Participants formed three small groups to discuss under facilitation.

Participants completed a questionnaire at the beginning and the end of the workshop. Survey tasks included ranking the above mentioned four carbon pricing options (from most preferred to least preferred), stating a maximum monthly WTP for emission mitigation for the next five years, and evaluating 22 statements based on a nine-point scale (from strongly agree to strongly disagree). The statements captured current opinions flowing around the actual debate about climate change and related institutions. These spread across three main themes, namely, importance of climate mitigation, expected role of the government and markets, and potential implications of official carbon pricing. The questionnaire was piloted to ensure clarity and relevance.

4.2 Analysis of Subjective Values

Responses to the 22 statements were analyzed using the Q methodology (Brown, 1980; McKeown and Thomas, 1988) with methodological variations noted below. Q methodology investigates a person's communication of her points of view within an internal frame of reference. Every response is understood within the context of its relationship with the other responses. Q involves participants' sorting a purposively

sampled set of stimuli, called Q sample (in this study, the 22 statements). Each participant is confronted the Q sample and ranks order them within a specified distribution, which is usually coded with a scale from 'most agree' to 'most disagree'. The rank-ordered set is called a 'Q sort'.

Q sorts are factor analyzed. Coherent patterns among the participants are identified by correlating individual Q sorts against one another. Unlike conventional factor analysis, individuals, rather than traits or Q-sample items, are taken as variables to be correlated. Resulting factors represent assembled points of view, or discourses. Each identified discourse consists of a distinct set of responses and represents categories described similarly by those individuals who are significantly 'loaded' on the same factor. Factor loadings are essentially correlation coefficients, indicating the extent that each Q sort is similar or dissimilar to the composite factor.

Factor interpretation is based on factor scores. Factor scores for each factor are the scores gained by each Q statement and calculated as a weighted average (usually normalized for direct comparison); they yield a composite factor that models a hypothetical individual who has a 100% loading on the factor. The statements are substantially significant relative to the factor; the interpretation of each statement, therefore, is subject to the dynamic of all statements as rank-ordered by the respondents, i.e. self-referent. Examination of significant factors, or 'typical

discourses', is an interpretative activity. This involves elaboration on the overall patterns and interrelationships of those statements as rank-ordered in the idealized Q sorts that indicate distinct viewpoints and attitudes.

One reason for employing this methodology for this study is that Q can work with a small sample size (e.g. 12) and does not pursue demographic representation (Davies and Hodge, 2012). A more important reason is that the treatment involved in Q requires more than agglomeration across atomistic individuals, but *communication* of viewpoints among them as if they are 'deliberating'. Q sorts, which represent the individuals' viewpoints, are analysed by computing their correlations. Factors are then identified as a result of these statistical interactions between Q sorts. This methodological treatment effectively enables communication of viewpoints and is amenable to the concept of communicative rationality (Dryzek, 1990). It can help illustrate what is expected from a communicatively rational deliberation as defined in terms set out in Section 2.3.

The present study varies from the standard practice in two aspects. First, statements were freely distributed, although statistically this does not dramatically impact on the quality of results (Cottle and McKeown, 1980). Second, only 22 statements were employed, well below the standard range of 40 to 60. Consequently the discourses identified may not be exhaustive.

5. Deliberative Impacts on Expressed Preferences and Values

Each subject completed the questionnaire in two sessions, yielding 48 Q sorts. The Q sorts were factor analyzed as a single block using principal component method followed by varimax rotation. Variations in factor loadings, preference rankings and stated WTPs as a result of deliberation were reported as follows.

5.1 Preference ranking and WTP

Both before and after deliberation, the subjects generally indicated a preference for official carbon pricing, in favour of unofficial/no pricing (Table 2). By aggregate ranking a carbon tax was preferred, which received 12 primary votes, 3 votes ahead of emission trading. The consistently lower rankings of voluntary offsetting and ‘no pricing’ indicated a general affinity for official carbon pricing. However, two subjects held completely opposite views (Nancy and Mike¹⁰). They did not believe that it is fair for Australia to curb greenhouse gas emissions and refused to answer the WTP question. It was believed to be a protest against the scenario¹¹.

¹⁰ All participant names were assigned to preserve anonymity.

¹¹ They believed that Australia’s contribution to global GHG emission is minimal and climate change is not human induced. It does not appear that they saw global emission mitigation as unnecessary, but more of a decline of responsibility on some moral grounds (e.g. cost distributional justice, fairness in the absence of global action).

Table 2 About Here

Deliberation did not change the aggregate ranking. Participants continued to struggle over carbon tax and emission trading. The most preferred option (carbon tax) showed the greatest movement in sum of rank. It was chosen by more people as principal option, yielding a net increase from 12 to 16 votes, or 50% to 62% of the total ¹², suggesting that an agreement on expressed preferences was under development. Mike, who once rejected carbon pricing, contributed to the increasing support. Some ranked 'no carbon pricing' more favourably (Cynthia, Kate, Ross and Sarah). This does not match their relatively high WTPs, but seems to reflect a reduced preference for its alternatives, namely, voluntary offsetting or emission trading. WTP went down in eight cases and up in just four. Both of the protest bidders returned a positive WTP, indicating a qualitative convergence in willingness to pay. Note that, nevertheless, 'no carbon pricing' remained their first or second preference.

5.2 Subjective discourses

The Q sorts captured the subjects' values and beliefs about climate change and mitigation. Factor analysis extracted three factors. An extracted factor represents a set

¹² One individual (Dan) ranked three options as first preference, raising the number of primary votes to 26. $16/26 = 62\%$

of idealized perspectives constituting a distinct discourse and is defined in terms of the factor scores (Table 3). Each of the three discourses is identified with a label (The numbers in the brackets refer to statement numbers in Table 3):

Managed Marketization (*Factor A*). This discourse accepts the science of human-induced climate change as valid and sees mitigation of greenhouse gas emissions as necessary (1, 6, 18). It affirms the potential of the markets and commercial investments in mitigation (7, 21), in favour of direct regulation (17). Nevertheless this market liberal discourse does not resist administrative measures. There is some confidence in a bigger government with no strong concern on transparency issues (4, 12). Compulsory contribution from households and businesses is supported (8, 9). An important yardstick is actual consequences, in terms of mitigative effects and global influence (2, 22). The discourse demands that governments set agenda and enforce targets, while enabling the markets to meet these targets efficiently. It captures the core features of cap-and-trade mechanisms. Factor loadings on this discourse are statistically higher for those who ranked emission trading as the most preferred option ($t = 3.573$, $p < 0.01$). This means that its adherents prefer emission trading to its alternatives.

Strong Government (*Factor B*). This discourse also affirms the science of human-induced climate change and stresses the need to respond (1, 6, 18). It runs into a different direction by holding stronger resistance to market-based approach (7, 21). Preference goes to direct regulation (17), but it is conditioned upon the balance of regulation and bureaucracy and the openness of the system (4, 12). Commitment to climate protection does not depend on actual global impacts through influencing other countries (16) nor, at least not strongly, a guarantee of a level of emission reduction (2). The belief that someone has to pay appears slightly stronger (3, 14, 20). This discourse is intrinsically motivated and hostile to the markets which appear better at providing extrinsic incentives for management of public goods. State-led regulatory programmes are accepted with cautions. Adherents of this discourse lean towards the concept of carbon tax ($t = 2.686$, $p < 0.05$)

Scepticism (*Factor C*). Scepticism stands in contrast to the above two discourses. It involves a denial of the existence of human-induced climate change and refusal to take actions prior to scientific consensus (1, 6, 18). Compulsory contribution from households is categorically rejected for increasing their economic burdens (3, 20, 8). It seems to be a liberal discourse being pro-market (7, 21) and indifferent to requests for more industrial commitments (9, 11, 14). However, it generally supports

politicians and administrative solutions (4, 5, 17). The discourse is hostile to global citizenship: it does not seek to influence other countries while demanding their initiatives (16, 22). Sceptics tend to see no need for pricing carbon ($t = 6.804$, $p < 0.01$).

Table 3 About Here

Main differences are discernible in terms of trust in the markets and trust in science. The two dominant discourses, Managed Marketization and Strong Government, share the view that the global climate is changing due to human activities. Managed Marketization is characterized by a more pragmatic environmentalism emphasizing efficiency and consequences of emission mitigation. Carbon pollution is attributed to market failures. Governments should correct the markets through proper regulation. Strong Government's environmentalism is more conservative and less consequentialist. The markets are considered inherently flawed, so that governments should explore alternatives to avoid repeating failures.

Scepticism seems to be self-contradictory by containing both pro-market and pro-government elements. It envisions an unproblematic harmony encompassing the current development modes and the climate. The sceptics believe that the government

has done enough. Unlike Managed Marketization, Scepticism does not embrace the markets *per se*. The disposition stems from a belief that there is no more need for the government to get involved in emission mitigation beyond existing regulatory efforts. This is evidenced by the seemingly contradictory attitude toward the idea of carbon pricing. Although Scepticism has expressed confidence in a strong government, this is probably because it does not regard the Australian government as failing to address global climate change. Strong Government, to the contrary, demands more from the government to redeem its failures, and thus remains cautious of politics.

5.3 Changes in values and beliefs

Table 4 presents the correlation between each subject's Q sort and the idealized Q sort denoting the corresponding factor. The majority of subjects were loaded on either Managed Marketization or Strong Government (Factors A and B respectively), and many were associated with both at the same time. Scepticism (Factor C) proved to be a zone of polarization with a number of negative loadings. Only three mounted on this discourse and two of them were strongly held to it.

Table 4 About Here

Deliberation did not change the subjective landscape dramatically. Most of the subjects continued to struggle over the two dominant positions and the three sceptics remained loaded on Factor C. Although four more subjects agreed with Managed Marketization to a significant degree, two more were principally loaded on Strong Government. Moreover, three more subjects became associated with two factors, leading to an increase in the total number of subjects having double significant factor loadings from 15 to 18. The number of subjects in significant agreement did not decline across all of the three factors.

The post-deliberation relationship between Scepticism and the other two discourses is worth noting. The two strong sceptics (Nancy and Mike) experienced a substantial growth in affinity for an alternative discourse. Nancy became more sympathetic to the Managed Marketization discourse with a correlation 28, rising from -24. Mike shared with Strong Government with a correlation 50, rising from -31. Other individuals appeared to be impressed by the sceptical perspectives to varying extents. Remarkable withdrawal from their pro-climate positions, however, was not observed. Take the three observations with the greatest growth in Scepticism as examples: Elaine and Phillip had their loadings on a pro-climate discourse increased, and Alan became associated with both Factors A and B. Scepticism was not swept away. Both Mike and Nancy remained attached to Scepticism, and the reduction in

their factor loadings was offset by the subjective growth of other individuals (see also Table 5). Kate and Mike (and perhaps Phillip as well) had gained access to two competing discourses.

Table 5 displays the average correlation between subjective positions. The first row presents the correlation between subjects and a discursive position, or an idealized Q sort. It is computed by averaging the factor loadings on each of the three factors, i.e. column average in Table 4. These estimates measure the extent to which the individuals adhered to a particular political ideal. Changes in all of the average values as a result of deliberation were not statistically significant. There was no observed conversion of values leading to global shrinkage or expansion of discourses.

Table 5 About Here

Average correlation between *pairs of subject* is presented at the bottom of Table 5. It is computed by comparing an individual's value profile with every other's, i.e. correlating each subject's Q sort to the other 23 participants individually. These estimates measure the extent to which the individuals shared with each other in terms of subjective experience (inter-subjectivity). The average value significantly increased from 53 to 60 ($t = 5.702, p < 0.01$). This shows that the deliberation has improved

inter-subjective understanding between the participants. Nonetheless it did not result in a normative consensus, as evidenced by the limited degree of convergence in values and beliefs in aggregate terms. The enhancement of inter-subjective coherence was not followed by a tendency of normative uniformity.

6. Discussion

The small-group deliberations enabled communication between competing discourses. Changes in subjective values as a result of deliberation did not run parallel to expressed preferences. The discourses identified did not diminish, while a consensual decision on carbon tax gained progress. The sharing of subjective experiences among participants had been enhanced¹³. A mutual transformative dynamic was operative, contributing to the increasing sympathy given to alternative positions. Understandings across discursive divide were broadened without erasing differences in values.

The results can be interpreted in terms of workable agreement. Deliberation facilitated expression of support to a course of action. Preference divergence was reduced, along with a qualitative improvement in willingness to pay from opponents. The carbon tax option managed to secure majority support. All of the participants agreed to pay for emission mitigation, including the two climate sceptics who initially

¹³ An anonymous reviewer suggests that this argument could be substantiated by including an experimental control for repeated measurement without deliberation.

refused. These two participants became more sympathetic to an alternative position while significant departure from the Scepticism discourse was not observed. This occurred under no explicit requirement of reaching consensus during the course of deliberation. Reasons supporting their expressed preferences had been communicated although divergence in value and belief remained. Some of the participants gained access to an alternative position without completely withdrawing from the dominant one. Deliberation strengthened inter-subjective understanding, and there was no evidence showing a tendency for unilateral movement of subjective dispositions. The deliberative generation of mutual understanding contributed to the development of the workable agreement.

The notion of workable agreement seems to be unintelligible to conventional models of rationality. The deliberation did not make at least some of the participants express a preference in accordance with what their subjective values dictate. Some ecological economists would see the increasing sympathy of some participants toward Scepticism, which affirms short-term benefits restricted to a smaller group of people (i.e. Australians) in contrast to taking comprehensive actions for the global climate, as a failed attempt at displacing environmentally unsustainable dispositions through group deliberations. This is because the theory predicts a tendency towards public-interested or impartial considerations (e.g. Sagoff, 1998; Vatn, 2009). As a corollary,

the deliberative enlightenment is expected to result in dissipation of the narrow scope of Scepticism through the process of ‘discourse migration’ (Hobson and Niemeyer, 2011). Likewise, neoclassical economists would understand the qualitative improvement in WTP of the climate sceptics as merely an irrational response resulting from implicit group pressures or poor experimental operation. At best it would be relegated to a mistaken observation because they expressed preference for something they did not believe in, or not ‘useful’ to them¹⁴. There was a decline in value-preference consistency both groups of economists seek to strengthen.

Nonetheless I argue that the results help clarify a structural impediment to the reorientation of the framework of economics towards value pluralism. The development of workable agreement indicates a sort of rationality endemic in the communicative practice of everyday life. Some of the participants were found to be able to invoke a bridging rhetoric which proved effective in facilitating deliberation across discursive divide (Lo, 2011b)¹⁵. The observations can be explicated under the framework of discursive democracy (Dryzek, 2000, 2010), which is rooted in the theory of communicative action. Communicative rationalization is a better explanation of the observed changes in expressed preferences and values. Global

¹⁴ This is a real response from a mainstream economist to this paper presented in a research seminar by the author in January 2011.

¹⁵ Transcripts of the reported deliberative workshop provided a clearer picture as to how the workable agreement emerged and how the rhetoric functioned as it was invoked, not strategically and perhaps not deliberately, during the course of deliberation. The rhetoric invoked was a creative interpretation of carbon tax as ‘Medicare for the environment’ and evolved from the natural process of communication between some participants. The analysis of transcripts is reported in Lo (2011b) and Lo et al. (in press).

shrinkage or expansion of discourses was not observed. Instead, there was generalization of interests manifested in the improving mutual recognition with respect to *both* sceptical and pro-climate positions. Transformation of values was based on strengthened connection between different subjective positions rather than displacement of any one. The deliberative outcome can be considered to be communicatively rational and compatible with the concept of value pluralism, although some of its attributes do not well accord with economic predictions.

7. Conclusions

Modern political economy theories attempt to explain political behaviour and institution in economic terms. Ecological economics, alternatively, can be oriented to the study of economic behaviour and institution in broader political terms. Assessment of attitudinal expressions about environmental goods and services in monetary terms should move beyond the conventional economic ambits to the extent in which people's perception and motivation toward the financing and economic functioning of such public goods contain significant non-economic dimensions. Boundaries of environmental discourses are permeable and transformable over time. Every discourse has its own ways to construct and express willingness to pay which are shaping and reshaping all the way during the course of communicative interaction. Value-

articulating institutions need a flexible and adaptable shape to order to cope with actual variations and conflicts in values.

In this light, monetary valuation of the environment is reconstructed toward a topical and not a methodological concept. DMV is invariably about money and values yet allowing varying possibilities of theorization. The methodology is a variable that is subject to continual structural deconstruction and reconstruction. It encompasses a set of principles and concepts and is not claimed to be a 'ready-for-use' technique. WTP elicitation is broadly understood as part of a micro-political process and expressed monetary WTP as a contingent political construct subject to post-deliberative interpretation. As a product of a democratic deliberation, its meaning should be left open-ended, contingent upon the communicative dynamic and the subjective experiences of the valuing agents. In the present study, the WTP is interpreted as an outcome of improving mutual understanding across discursive divide.

In this regard the main problem of neoclassical economics is not merely attributed to the failure to recognize alternative values. Recognition by some ecological economists has been directed toward isolation of a desired conception of values, which threatens to repeat the failure of neoclassical economics. The arguments against the ethical premises of the neoclassical turned around could constitute a solid

attack to the citizen-oriented approach. Self-interested, consumer-type respondents may still reasonably indicate dissatisfactions to a citizen frame of valuation, as evidenced in Soma and Vatn (2010). A critical issue unaddressed is the negative relationship between the capacity of conceptualizing values and the actual diversity of values. Building a pluralistic theory of value upon any one pole of a dichotomy is doomed to failure because its functioning hinges on rejection of the alternative.

A pluralistic account for economics entails a positive relationship between conceptualizing capacity and diversity, which may be strengthened by shifting the present focus from presupposition of substantive morality to that of discourse ethics among economic agents viewed as engaging in some form of communicative interaction. Analytical efforts on mere expression of preferences support the more important inquiries into the creation of cognitive impacts upon each other and validation of alternative claims of interest. The latter connote a focus on the ways in which expressed economic considerations and their moral alternatives communicate towards discovery of generalizable interests. In this light, the deliberative WTP is seen as indicative of an expression of support to a cooperative venture, which may be termed as ‘agreement to pay’ to denote the mutuality aspect in contrast to ‘willingness to pay’ (Lo and Spash, in press). Rationality of group-coordinated economic order or decision regarding the use of public goods should be evaluated in terms of the agents’

motivation toward cognitive consensus manifested in the desires for their perspectives to have an impact on others. A core principle is generalization of interests, which becomes more important when conversion or reduction of normative values proves undesirable or formidable.

Under this framework, deliberative methods are not seen as a moral or epistemic transformative device that is primarily used to change what decision makers might think as right or true. Enhancing value-preference consistency may indicate declining epistemic quality of deliberative outcomes to the extent in which value pluralism and consensus are regarded as equally important. Communicatively rational deliberation may result in restructuring of disputed preference profiles in a way that allows departure from what one's values or beliefs dictate. Communicated subjective dispositions may indicate a deliberative success regardless of the degree of aggregate change in subjective landscape.

Policy recommendations agreed by diverse groups engaging in deliberative decision making processes may not always match the whole spectrum of competing perspectives. The outcomes should be evaluated in terms of the quality of the dialogical process, among other criteria. The key is not only which value positions are included and expressed, but how they are re-interpreted and generalized to each other by their proponents and opponents in defending a preferred option. The sharing of

discursive beliefs among deliberants is one important criterion for the evaluation of deliberatively produced policy recommendations. Communicatively rational outcomes are produced through the exercise of informed and cognitively generalized reasons.

Acknowledgement

This research was funded by a CSIRO Postgraduate Studentship. The author is indebted to Wendy Proctor, Kim Alexander, and Anthony Ryan for providing useful advices and essential supports to the doctoral fieldwork leading to the paper. The 24 participants of the deliberative workshop crucially contributed to the success of the research project by paying their time and efforts for the one-day event. Constructive comments provided by Clive Spash and John Dryzek on a dissertation on which is paper is based are appreciated. All errors remain the author's responsibility.

References:

- Australian Government, 2008. Carbon Pollution Reduction Scheme: Australia's Low Pollution Future, Volume 1. Commonwealth of Australia, Canberra.
- Australian Government, 2011. Securing A Clean Energy Future: The Australian Government's Climate Change Plan. Commonwealth of Australia, Canberra,
- Bateman, I.J., Burgess, D., Hutchinson, W.G., Matthews, D.I., 2008. Learning design contingent valuation (LDCV): NOAA guidelines, preference learning and coherent arbitrariness. *Journal of Environmental Economics and Management* 55, 127-141.
- Brouwer, R., Powe, N., Turner, R.K., Bateman, I.J., Langford, I.H., 1999. Public Attitudes to Contingent Valuation and Public Consultation. *Environmental Values* 8, 325-347.
- Brown, S.R., 1980. *Political Subjectivity*. Yale University Press, New Haven.
- Brown, T.C., Peterson, G.L., Tonn, B.E., 1995. The values jury to aid natural resource decisions. *Land Economics* 71, 250-260.
- Christie, M., Fazey, I., Cooper, R., Hyde, T., Kenter, J.O., 2012. An evaluation of monetary and non-monetary techniques for assessing the importance of biodiversity and ecosystem services to people in countries with developing economies. *Ecological Economics* 83, 67-78.
- Costanza, R., 2000. Social goals and the valuation of ecosystem services. *Ecosystems* 3, 4-10.
- Cottle, C.E., McKeown, B.F., 1980. The forced-free distinction in Q technique: A note on unused categories in the Q sort continuum. *Operant Subjectivity* 3, 58-63.
- Davies, B.B., Hodge, I.D., 2012. Shifting environmental perspectives in agriculture: Repeated Q analysis and the stability of preference structures. *Ecological Economics* 83, 51-57.
- Dewey, J., 1923. *The Public and Its Problems*. Henry Holt, New York.
- Dietz, T., Stern, P.C., Dan, A., 2009. How deliberation affects stated willingness to pay for mitigation of carbon dioxide emissions: An experiment. *Land Economics* 85, 329-347.
- Douai, A., 2009. Value theory in ecological economics: The contribution of a political economy of wealth. *Environmental Values* 18, 257-284.
- Dryzek, J.S., 1990. *Discursive Democracy: Politics, Policy, and Political Science*. Cambridge University Press, Cambridge.
- Dryzek, J.S., 2000. *Deliberative Democracy and Beyond: Liberals, Critics, Contestations*. Oxford University Press, Oxford, U.K.
- Dryzek, J.S., 2010. Rhetoric in democracy: A systemic appreciation. *Political Theory* 38, 319-339.
- Dryzek, J.S., Niemeyer, S., 2006. Reconciling pluralism and consensus as political ideals. *American Journal of Political Science* 50, 634-649.
- Dryzek, J.S., Niemeyer, S., 2008. Discursive representation. *American Political Science Review* 102, 481-493.

- Gasparatos, A., 2010. Embedded value systems in sustainability assessment tools and their implications. *Journal of Environmental Management* 91, 1613-1622.
- Gowdy, J.M., 2004. The revolution in welfare economics and its implications for environmental valuation and policy. *Land Economics* 80, 239-257.
- Gowdy, J.M., 2007. Toward an experimental foundation for benefit-cost analysis. *Ecological Economics* 63, 649-655.
- Gregory, R., Lichtenstein, S., Slovic, P., 1993. Valuing environmental resources: A constructive approach. *Journal of Risk and Uncertainty* 7, 177-197.
- Habermas, J., 1984. *The Theory of Communicative Action I: Reason and the Rationalization of Society*. Beacon Press, Boston.
- Hanley, N., Shogren, J.F., 2005. Is cost-benefit analysis anomaly-proof? *Environmental and Resource Economics* 32, 13-34.
- Hanson, F., 2008. *The Lowy Institute Poll 2008*. Lowy Institute for International Policy, Sydney,
- Hanson, F., 2010. *The Lowy Institute Poll 2010*. Lowy Institute for International Policy, Sydney,
- Hobson, K., Niemeyer, S., 2011. Public responses to climate change: The role of deliberation in building capacity for adaptive action. *Global Environmental Change* 21, 957-971.
- Howarth, R.B., Wilson, M.A., 2006. A theoretical approach to deliberative valuation: aggregation by mutual consent. *Land Economics* 82, 1-16.
- Kesting, S., 2010. Boulding's welfare approach of communicative deliberation. *Ecological Economics* 69, 973-977.
- Lennox, J., Proctor, W., Russell, S., 2011. Structuring stakeholder participation in New Zealand's water resource governance. *Ecological Economics* 70, 1381-1394.
- Lo, A.Y., 2011a. Analysis and democracy: The antecedents of the deliberative approach of ecosystems valuation. *Environment and Planning C: Government and Policy* 29, 958-974.
- Lo, A.Y., 2011b. *Deliberative Monetary Valuation as a Political-Economic Methodology: Exploring the Prospect for Value Pluralism with a Case Study on Australian Climate Change Policy*, Unpublished PhD thesis. Chapter 9. School of Politics and International Relations. Australian National University, Canberra.
- Lo, A.Y., 2012. The encroachment of value pragmatism on pluralism: The practice of the valuation of urban green space using stated-preference approaches. *International Journal of Urban and Regional Research* 36, 121-135.
- Lo, A.Y., in press. More or Less Pluralistic? A Typology of the Remedial and Alternative Perspectives on Monetary Valuation of the Environment. *Environmental Values*
- Lo, A.Y., Alexander, K.S., Proctor, W., Ryan, A., in press. Reciprocity as deliberative capacity: Lessons from a citizens deliberation on carbon pricing mechanisms in Australia. *Environment and Planning C: Government & Policy*.

- Lo, A.Y., Spash, C., in press. Deliberative monetary valuation: In search of a democratic and value plural approach for environmental policy. *Journal of Economic Surveys*. DOI: 10.1111/j.1467-6419.2011.00718.x
- Lo, A.Y., Spash, C.L., 2012. How Green is your scheme? Greenhouse gas control the Australian way. *Energy Policy* 50, 150-153.
- MacMillan, D.C., Hanley, N., Lienhoop, N., 2006. Contingent valuation: environmental polling or preference engine? *Ecological Economics* 60, 299-307.
- McKeown, B., Thomas, D., 1988. *Q Methodology*. Sage Publications, Newbury Park, CA.
- Mill, G.A., Rensburg, T.M.v., Hynes, S., Dooley, C., 2007. Preferences for multiple use forest management in Ireland: citizen and consumer perspectives. *Ecological Economics* 60, 642-653.
- Norgaard, R.B., 2007. Deliberative economics. *Ecological Economics* 63, 375-382.
- O'Connor, M., 2000. Pathways for environmental evaluation: a walk in the (Hanging) Gardens of Babylon. *Ecological Economics* 34, 175-193.
- O'Neil, J., Holland, A., Light, A., 2008. *Environmental Values*. Routledge, London.
- Pelletier, N., 2010. Environmental sustainability as the first principle of distributive justice: Towards an ecological communitarian normative foundation for ecological economics. *Ecological Economics* 69, 1887-1894.
- Plottu, E., Plottu, B., 2007. The concept of Total Economic Value of environment: A reconsideration within a hierarchical rationality. *Ecological Economics* 61, 52-61.
- Powe, N.A., 2007. *Redesigning Environmental Valuation: Mixing Methods within Stated Preference Techniques* Edward Elgar, Cheltenham, England.
- Rawls, J., 1971. *A Theory of Justice* Clarendon Press, Oxford.
- Sagoff, M., 1988. *The Economy of the Earth: Philosophy, Law, and the Environment* Cambridge University Press, Cambridge.
- Sagoff, M., 1998. Aggregation and deliberation in valuing environmental public goods: a look beyond contingent pricing. *Ecological Economics* 24, 213-230.
- Söderbaum, P., 2008. *Understanding Sustainability Economics: Towards Pluralism in Economics* Earthscan, London.
- Soma, K., Vatn, A., 2010. Is there anything like a citizen? A descriptive analysis of instituting a citizen's role to represent social values at the municipal level. *Environmental Policy and Governance* 20, 30-43.
- Spash, C.L., 2007. Deliberative monetary valuation (DMV): issues in combining economic and political processes to value environmental change. *Ecological Economics* 63, 690-699.
- Spash, C.L., 2012. New foundations for ecological economics. *Ecological Economics* 77, 36-47.
- Spash, C.L., Lo, A.Y., 2012. Australia's Carbon Tax: A Sheep in Wolf's Clothing? *The Economic and Labour Relations Review* 23, 67-86.

- Vadnjal, D., O'Connor, M., 1994. What is the value of Rangitoto Island? *Environmental Values* 3, 369-380.
- van den Bergh, J.C.J.M., 1996. *Ecological economics and sustainable development : theory, methods and applications* Edward Elgar, Cheltenham, U.K.
- van den Bergh, J.C.J.M., Ferrer-i-Carbonell, A., Munda, G., 2000. Alternative models of individual behaviour and implications for environmental policy. *Ecological Economics* 32, 43-61.
- Vatn, A., 2005. *Institutions and the Environment* Edward Elgar, Cheltenham, England.
- Vatn, A., 2009. An institutional analysis of methods for environmental appraisal. *Ecological Economics* 68, 2207-2215.
- Warren, M.E., 1995. The self in discursive democracy, in: White, S.K. (Ed.), *The Cambridge Companion to Habermas*. Cambridge University Press, Cambridge.
- Wilson, M.A., Howarth, R.B., 2002. Discourse-based valuation of ecosystem services: establishing fair outcomes through group deliberation. *Ecological Economics* 41, 431-443.
- Zografos, C., Howarth, R.B., 2008. *Deliberative Ecological Economics*. Oxford University Press, New Delhi.
- Zoltán, S., 2011. Reducing protest responses by deliberative monetary valuation: Improving the validity of biodiversity valuation. *Ecological Economics* 72, 37-44.

Table 1 Idealized movements in level of engagement in two hypothetical value sets

	Pre-deliberation		Post-deliberation	
	Value Set 1	Value Set 2	Value Set 1	Value Set 2
Individual A	100	0	50	50
Individual B	0	100	50	50
Average	50	50	50	50

Table 2 Subjects' preference ranking and willingness-to-pay (WTP)

Subject	Pre-deliberation					Post-deliberation				
	Emission trading	Carbon tax	Voluntary offsetting	No carbon pricing	WTP (AUD)	Emission trading	Carbon tax	Voluntary offsetting	No carbon pricing	WTP (AUD)
Alan	2	1	3	4	200	2	1	3	4	200
Brian	2	1	3	4	200	3	1	2	4	200
Claire	2	1	3	4	50	2	1	3	4	50
Cynthia	4	1	4	4	100	2	1	3	2	100
Dan	2	3	1	4	500	1	1	1	4	50
Dave	2	1	3	4	100	2	1	3	4	100
Elaine	1	2	3	4	100	1	2	3	4	100
George	1	2	3	4	Not specified	1	2	3	4	25
Helen	1	2	3	4	71	2	1	3	4	80
Howard	1	2	3	4	30	2	1	3	4	23
Ian	1	2	3	4	100	2	1	3	4	50
James	2	1	3	4	120	2	1	3	4	150
John	1	2	3	4	50	1	2	3	4	20
Kate	2	1	3	4	150	2	1	4	3	150
Kevin	1	2	3	4	100	1	2	3	4	90
Liana	2	1	3	4	100	2	1	3	4	100
Mark	1	2	3	4	20	1	2	3	4	4
Mike	4	3	2	1	Refused	3	1	4	2	20
Nancy	4	4	4	1	Refused	2	4	3	1	5
Phillip	2	1	3	4	50	2	1	3	4	50
Ross	2	1	3	4	200	2	1	4	3	200
Sarah	3	1	2	4	100	4	1	2	3	85
Stephanie	2	1	3	4	50	1	2	3	4	50
Wilson	1	2	3	4	100	1	2	3	4	70
Sum of rank	46	40	70	90		44	34	71	86	
Aggregate rank	2	1	3	4		2	1	3	4	
Principal option (No. of votes)	9	12	1	2		8	16	1	1	

Table 3 Factor scores

No.	Description	Statement	Factor		
			A	B	C
1	Mitigation impacts	National GHG emissions should be considerably reduced.	4	4	-4
2	Certainty of impact	An emission reduction scheme should involve a guarantee that a certain level of reduction will be achieved.	4	2	-1
3	Costs to households	Additional costs to households should be avoided.	0	-1	4
4	Bureaucracy	A government-led reduction scheme would create bureaucracy and should be avoided.	-4	0	-4
5	Trust in politics	We can't rely on the government to reduce GHG emissions. I don't trust politicians.	-1	0	-4
6	Scientific consensus	We do not yet have consensus on the science of climate change and so should not take action to reduce greenhouse emissions.	-4	-3	4
7	Efficiency	Market-based approach should be used to ensure efficiency (i.e. lowest possible cost for a given level of emission reduction).	4	-4	3
8	Compulsory share (household)	Reducing GHG emissions should involve a compulsory share by households	3	3	-4
9	Compulsory share (business)	Reducing GHG emissions should involve a compulsory share by businesses	4	4	0
10	Continuity	Climate policy should involve political certainty, e.g. not easily affected by change of government.	4	4	4
11	Compliance	We need a system that enforces compliance of companies to reduce GHG emissions	4	4	0
12	Transparency	Emissions reduction policy should be transparent and easy to understand by all.	0	4	4
13	The poor pay less	Lower-income families should contribute proportionally less to emission reduction.	3	4	4
14	The industry pay more	Energy-intensive industries should be responsible for the costs of emission reduction.	2	3	0
15	Cost transfer	Businesses should not pass the costs of emission reduction on to consumers.	0	0	0
16	Global action	We should not take action if other countries do not do the same.	0	-4	4
17	Direct regulation	Direct regulation is more effective than any form of carbon pricing.	-4	3	3
18	Human contributions	The effect of humans on climate is small. Reducing emissions is not a priority.	-4	-4	3
19	Fairness	It is only fair that every Australian helps to reduce GHG emissions.	3	4	2
20	No tax	I already pay enough tax, we don't need a new one.	-3	-4	4
21	Profit allowed	Companies should be allowed to make profit by reducing their own GHG emissions.	4	0	3
22	Global influence	Our climate policy should be able to affect other countries' decisions on emissions reduction.	3	3	-3
Eigenvalue			16.83	17.13	3.92

Note: Level of agreement based on a 9-point scale (-4 = strongly disagree to 4 = strong agree)

Table 4 Subjects' Factor Loadings (x100)

Subject	Pre-deliberation			Post-deliberation		
	A	B	C	A	B	C
Alan	34	75 *	-32	56 *	70 *	4
Brian	63 *	71 *	-13	42 *	88 *	-11
Claire	73 *	59 *	18	83 *	29	4
Cynthia	24	89 *	-18	42 *	85 *	-13
Dan	37	67 *	19	49 *	77 *	-16
Dave	64 *	60 *	-19	67 *	66 *	-15
Elaine	58 *	49 *	-29	73 *	51 *	-1
George	73 *	39	-6	78 *	41 *	-15
Helen	54 *	77 *	1	69 *	69 *	8
Howard	77 *	50 *	10	75 *	58 *	-12
Ian	63 *	58 *	11	71 *	54 *	5
James	71 *	56 *	-4	50 *	65 *	-4
John	80 *	32	-4	82 *	21	-2
Kate	33	46 *	59 *	54 *	12	44 *
Kevin	68 *	64 *	23	58 *	74 *	9
Liana	39	85 *	-13	55 *	72 *	-3
Mark	74 *	52 *	0	80 *	45 *	-5
Mike	-10	-31	87 *	-10	50 *	58 *
Nancy	-24	-12	90 *	28	-16	72 *
Phillip	35	29	-24	61 *	5	38
Ross	56 *	69 *	-19	38	74 *	-2
Sarah	51 *	66 *	4	19	92 *	20
Stephanie	70 *	59 *	2	68 *	62 *	-12
Wilson	81 *	47 *	17	62 *	64 *	23
No. of subjects in significant agreement	16	19	3	20	19	3
Principal factor	12	8	3	12	10	2

Note: * denotes significance, which is determined by standard error = $1/\sqrt{N}$ (Brown, 1980), where N denotes number of statements. At the 95% level, significance cut-off is around 40 ($1.95 \times 1/\sqrt{22}$).

Table 5 Average correlations between subjective positions

Average correlation (x100)	Pre-deliberation			Post-deliberation		
	Factor			Factor		
Between subjects and a discursive position	A	B	C	A	B	C
	52	52	7	56	54	7
Between pairs of subjects	53			60*		

* $p < 0.01$