

# Environmental Markets vs. Environmental Deliberation: A Hayekian Critique of Green Political Economy

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In recent years support for Habermasian deliberative models of democracy has become widespread within environmental political economy. Many Green theorists are critical of arrangements that foster a narrowly instrumental or technocratic conception of reason. Prime targets for such criticism have been centralised bureaucratic institutions, characterised by 'expert' rule and the market models of decision put forward by the neoliberal right. From the perspective of Green political economy, such modes of decision are fundamentally defective and need to be replaced by radical, participatory forms of democracy that are judged conducive to the development of discursive decision procedures and hence of a more communicative rationality.

This article welcomes the critique of instrumental reason<sup>1</sup> and technocratic decision making advanced in Green political thought, but argues that the critical attitude towards market institutions reflects an excessively narrow reading of the classical liberal tradition and, in particular, a neglect of the Hayekian strand in liberal political economy. Having sketched out the 'Green' case for deliberative democracy, the article shows that the advocacy of markets in Hayekian liberalism is epistemologically grounded in a similarly hermeneutic or interpretative account of social interaction. Where the Hayekian analysis parts company with the deliberative democrats is in its normative account of the institutional arrangements that are compatible with these epistemological underpinnings. Hayekian political economy suggests that markets are necessary in order to extend social communication beyond the informational limits that are inherent to discursive political processes. In order to advance communicative processes in the environmental sphere, therefore, the article argues that, far from extending the range of state intervention, there should be an extension of private markets into areas of environmental decision making which it is often assumed must be the preserve of the social democratic state.

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## Green political economy and deliberative democracy

Instrumental rationality—the ability to devise, select and effect good means to clarified and consistent ends—lies at the core of two important perspectives, which are otherwise contrasting in their account of the institutional arrangements that are best suited to the task of environmental governance—on the one hand, the ‘expert-centred’ tradition of neoclassical welfare economics and, on the other, the ‘market-driven’ analysis of the public choice school.

Environmental welfare economics is based on a technocratic conception of decision making, where public administrators in possession of objective knowledge ‘correct’ for ‘market failures’ in order to ‘maximise’ social welfare. If, as a result of ‘public goods’ problems, the market economy ‘fails’ to respond to pre-given individual preferences then the task of the environmental manager is to deploy a range of ‘scientific’ evaluation techniques, in order objectively to measure preferences for the relevant environmental goods. These preferences may then be aggregated and a similar set of techniques deployed to identify the appropriate means to achieve the chosen policy goals.<sup>2</sup>

With its focus on the significance of ‘market failure’, welfare economics favours a state-centred model of environmental decision making. For the classical liberals of the public choice school, however, the state is fundamentally not to be trusted with the task of environmental management. Seen through this lens, politicians and public bureaucrats are themselves instrumental rationalists, the strategic interaction of whom may produce policy outcomes that are not compatible with the public weal. Incentives facing rational individuals within the ‘political market place’ are likely to result in collective irrationality with chronic bureaucratisation and special interest capture being the institutional norm. For public choice theorists, markets provide a better setting through which to channel instrumental rationality towards the public good. The solution to such well known environmental problems as the ‘tragedy of the commons’ and the ‘prisoners’ dilemma’ is, therefore, to ‘privatise’ environmental assets and, where this is not possible, to favour ‘market-like’ policy arrangements such as tradable permit schemes.<sup>3</sup>

Whilst environmental political economy is recognised as a broad theoretical church, a common theme in much Green theory has been a Habermasian/Frankfurt school-inspired reaction against the perceived dominance of instrumental reason. As Dryzek has noted, ‘if there is a consensus on anything at all in environmental philosophy, it is that a predominantly instrumental orientation on the part of human beings in the context of their interactions with each other and the natural world is destructive.’<sup>4</sup> Dryzek himself is perhaps the leading exponent of an alternative environmental political economy or, as he puts it, the search for *homo ecologicus*. According to Dryzek<sup>5</sup> and his followers,<sup>6</sup> the failings of instrumental rationality are threefold.

First, the emphasis on objective, ‘scientific’ conceptions of knowledge in the rationalist approach acts to exclude other forms of knowledge, such as tacit know-how, practical ‘common sense reason’ and appeals to moral or ethical claims that are not open to scientific measurement and quantification. Seen from this perspective, science has limited potential for objectivity and is shaped by

complex processes of social interaction. Green political economy, therefore, is more modest in its assumptions about the availability of the knowledge base for environmental policy. Knowledge itself is not something that exists in an objective sense, but is actively produced through a process of sociocultural interaction and intersubjective learning.<sup>7</sup>

Second, according to Dryzek,<sup>8</sup> instrumentalist models are guilty of treating individuals as isolated atoms rather than the profoundly social beings that they in fact are. In both welfare economics and in public choice theory, for example, individual preferences are taken as fixed and pre-given. Liberal institutions such as professional bureaucracy and the market, therefore, are not designed to encourage social engagement and the public shaping of preferences and values. Indeed, it is the dominance of instrumental rationality encouraged by both technocratic and market rationalism that leads to the selfish, anti-social behaviour that actively creates the 'tragedy of the commons'. Seen through this lens, environmental goods are inherently public rather than private goods and should be treated accordingly. As Jacobs has argued, forming attitudes towards public goods 'involves reasoning about other people's interests and values (as well as one's own) and the weight which should be given to them ... Attitude formation towards public goods is therefore essentially a public not a private activity.'<sup>9</sup>

Finally, according to Dryzek, instrumentalist models are plagued by an 'analytic sensibility', which assumes that complex problems can be understood by breaking them down into component parts, developing a solution to each component and then piecing together the relevant elements.<sup>10</sup> Public choice theorists, for example, advocate the 'parcelling out' of environmental assets to private owners, the strategic interaction of whom will lead to better environmental outcomes overall.<sup>11</sup> For Dryzek, however, technocratic forms of decision making or property rights/market-driven procedures are incapable of responding to the complexity inherent in social and ecological systems. Rather, they should be replaced by deliberative political arrangements that may facilitate a more communicative rationality in search of the 'common good' and the management of environmental problems in a 'holistic' or 'integrated' manner.<sup>12</sup> As Barry puts it,

Green politics as collective ecological management is about the collective judgement of the totality of relations which constitute a society's metabolism with its environment. Only an open-ended communicative process such as democracy can call forth and possibly integrate the various forms of knowledge that an ecological rational metabolism will require to command widespread support.<sup>13</sup>

According to this new, communicative political economy, environmental decision making must involve the rejection of centralised bureaucratic models and a move towards a more participatory form of democracy, where all the relevant 'stakeholders' are given a chance to have their say. Building on the Habermasian notion of the 'ideal speech situation', this deliberative conception

of democracy seeks to 'liberate' a passive citizenry from the manipulation of technocratic governance and the anomie of the market economy, in order to create a more informed and activist political culture of citizen 'empowerment'. In this way, the emphasis can be shifted away from a narrowly instrumental conception of rationality and the notion of the individual as 'consumer' towards the socially more 'empowering' notion of 'citizenship'. This may in turn help to develop the holistic sensibility deemed appropriate to the anatomy of the environmental crisis.<sup>14</sup>

### **Hayekian political economy, markets and communicative rationality**

Given the environmental and economic failures of technocratic planning, demonstrated most clearly by the experience of East European socialism, the critique of such procedures by Habermasian approaches is surely well placed. What is perplexing about Green democratic theory, however, is the similarly critical attitude towards market institutions. Instrumentalist models have indeed provided a significant element in arguments for the market, which, as in the case of public choice theory, emphasise the primacy of incentives, but it is inappropriate to suggest that this is the principal rationale for markets advanced by the liberal tradition. Arguably, the most forceful and influential advocacy of market institutions derives from Hayek and the 'Austrian school', none of whose arguments depends on any assumptions about the motivations of individual decision makers. These arguments do not, for example, assume that individuals are self-interested utility maximisers, as is the case in orthodox neoclassical economics and in public choice theory.<sup>15</sup>

The conflation of the case for markets with a positivistic, instrumentalist conception of reason is particularly surprising when considering that the focus on non-quantifiable, tacit and intersubjective forms of knowledge in deliberative theory (i.e. a hermeneutic account of social interaction) also constitutes the very heart of the critique of government planning and the advocacy of markets put forward by Hayek. Hayek's liberalism does not rest on a rationalist defence of the market, but instead offers a radical, epistemological alternative as a means for illuminating the primary merits of the market system. Hayekian liberals oppose neoclassical conceptions of markets, arguing that these models present individuals as atomistic automatons, responding to objective 'data' in the manner of robots. If such a world existed then there would in fact be no scope for individual choice, for people would have no option but to respond to the objective stimuli before them.<sup>16</sup> Similarly, if objective knowledge of relative resource scarcities could be made available in 'scientific' form, then it would be possible to dispense with the market in favour of central planning and to have the allocation of resources supervised by government officials employing the techniques of social cost/benefit analysis.

From a Hayekian perspective, it is precisely because values and knowledge are to a significant extent subjective that central planning is unlikely to succeed. The 'Austrian' advocacy of markets views individual choice as a creative act, which takes place under conditions of imperfect information, chronic uncer-

tainty and with the distinct possibility of error.<sup>17</sup> Individuals are not conceived as 'rational actors', because such action would require the pursuit of some optimal course, given objective knowledge of economic opportunity. Rather, people should be viewed as purposeful actors who base their plans on subjective perceptions of the opportunities before them. The market economy, meanwhile, should be seen as a profoundly social process of intersubjective trial and error, in which people learn about and at the same time shape one another's plans and preferences. Market actors, to use Gadamer's terminology, attempt to 'fuse their horizons' with those of others, so as to discover which goods to produce.<sup>18</sup>

Hayekian liberalism is clearly not afflicted with the 'analytic sensibility', which fails to consider the significance of social wholes in non-reductionist terms. As Madison has noted,<sup>19</sup> Hayek was one of the first modern social theorists to give an account of social wholes in irreducibly social terms, and he adopted the notion of 'spontaneous order' to fulfil this very task.<sup>20</sup> Spontaneous orders such as language and the market are 'spontaneous' in the sense that they were never consciously 'planned' and cannot, therefore, adequately be accounted for in terms of isolated, atomistic individuals (no one 'invented the market'). Theories which attempt to explain social phenomena in such rationalist terms are guilty of a 'false', Cartesian individualism. 'True' individualism, by contrast, is characterised by an attempt to understand the forces which influence the life of individuals as social beings.<sup>21</sup> For Hayek, the central concern of social science is to account for those generalised, transsubjective patterns of meaning that are the product of human action, but are not the result of human design.<sup>22</sup> Spontaneous orders of a social or economic sort are neither natural nor artificial, they are neither subjective (of the individual mind) nor objective (matter). Rather, they should be conceived in intersubjective terms. Hayekian political economy, therefore, is concerned with the communicative function of social institutions in general.<sup>23</sup>

To the extent that both Green deliberativists and Hayekian liberals conceive of social coordination as a process of intersubjective learning, then these two approaches appear to be treading similar ground. Where Hayekians part company with the deliberative democrats, however, is in their account of the institutional processes that are compatible with these epistemological foundations. Dryzek and his followers emphasise the importance of face-to-face communication and the conveyance of information via public discourse and debate. For Hayekians, by contrast, markets are required to facilitate intersubjective learning and coordination in situations where conscious deliberation and face-to-face communication are simply not possible. In order to understand the basis of a liberal critique of Green political economy, which flows from this perspective, it is necessary to flesh out in a little more detail the communicative function of markets and the epistemological deficiencies of government planning.

In Hayekian political economy, knowledge is considered to be diffuse, to a large extent subjective and, far from being given, must be produced through a process of trial and error learning.<sup>24</sup> This is not to say that no objective information may be obtained in a centralised form, but that even in the presence of such 'scientific' data different individuals will interpret the implications to be

derived from the same data in different ways. Prices formed by the interaction of market participants, therefore, are not a reflection of objective underlying relative scarcities, but are formed in part through the interplay of subjective beliefs about these scarcities. Human action takes place in a world of uncertainty where the outcomes of choices are to a significant extent imagined.<sup>25</sup>

Crucially, it is the lack of an effective equivalent to the reflexive feedback provided by the profit and loss account and the relational properties of market prices that reduces the process of social learning in a centrally planned system. From a Hayekian perspective, planners (democratically elected or otherwise) can never perceive and respond to as many instances of dis-coordination as can individuals who have the freedom to exchange property titles in the market.<sup>26</sup> Knowledge of means and ends is scattered in the minds of many dispersed actors, each of whom may possess subjective information that no one else discerns. Even in a world of perfect altruism, therefore, public-spirited planners could not obtain the information to engage in a process of conscious social planning due to the cognitive limits of the human mind.<sup>27</sup>

In the market economy, by contrast, each entrepreneurial act, such as the offering of a new price/product or changing the organisational form of production, actively creates new knowledge that might otherwise have gone unnoticed and may act to persuade other individuals to change their plans.<sup>28</sup> Entrepreneurial profits (and losses) may then be noticed by actors who imitate the behaviour of the successful and learn not to make the same errors as the unsuccessful. In turn, the structure of relative prices that emerges provides a way for people to discover what goods are more or less saleable, without ever having explicitly to ask or to articulate reasons why this is the case. As the behaviour of the successful is emulated more knowledge is produced and spreads throughout the market in a snowballing process, the results of which could never have been given to a group of minds attempting to simulate this process in advance.<sup>29</sup>

It should be noted that the existence of large, bureaucratically managed corporations, which might themselves be said to engage in a form of 'central planning', does not undermine the case for private markets. There may be important social gains, in terms of reducing transaction costs and the benefits of scale economies, to be made from centralisation and the operation of a hierarchical management system. As Coase famously pointed out, this is after all why firms exist.<sup>30</sup> The key point is that the optimum scale of economic organisations (i.e. the optimum scale at which 'planning' can take place) cannot be known in advance of competition, but is itself something that must be discovered and rediscovered through an open ended process of trial and error.<sup>31</sup> The appropriate boundary between the 'spontaneous order' of 'the market' and the 'planned or designed order' of 'the firm' is itself subject to a process of entrepreneurial experimentation.<sup>32</sup> It is for precisely this reason that the size and number of firms in different industrial sectors varies so markedly from decade to decade. Markets, therefore, whilst far from 'perfect', may offer a better mechanism to determine the appropriate scale of 'planning' organisations than administration by government bureaucracies, which are not themselves subject to an equivalent competitive discovery procedure.<sup>33</sup>

### **Hayekian political economy and the limits of ecological deliberation**

When applied to the analysis of environmental problems, the Hayekian perspective implies that it may be mistaken to suggest that governments can arrive at appropriately 'holistic' or 'integrated' environmental policies because public officials may not be able to know what they are supposed to be 'integrating'. Attempts at integrated forest management or the systems management of river catchments have, for example, frequently failed to have the desired effect because policy makers have repeatedly been unable to comprehend the complex relationships that pertain both within ecosystems and between ecosystems and the economy.<sup>34</sup> What is significant for current purposes, however, is that many elements of this Hayekian critique of technocratic planning may equally be relevant when applied to the Habermasian model of Green democracy. Consider first the fundamental issue of social and ecological complexity.

If it is accepted that the knowledge base necessary for effective decision making is diffused throughout the minds and actions of dispersed individuals, then there are a number of problems with the assumption that a participatory/deliberative democracy can deliver an appropriately 'integrated' and 'holistic' set of environmental decisions. To suggest, that because social and ecological systems are complexly related entities they must be managed on a similarly holistic basis is a complete *non-sequitur*. The normative conclusion that deliberative democratic control is required does not follow from the premise that social and ecological systems are holistically related. On the contrary, from a Hayekian perspective it is precisely because these systems are complexly related wholes that conscious social control is a problematic concept. Theorists such as Dryzek appear to be suggesting that epistemological problems of this sort could somehow be solved if only all the relevant 'stakeholders' (in their multiple social and economic roles) could be gathered together in some sort of grand committee meeting to discuss the issues in hand (a logistical impossibility in itself).<sup>35</sup> It is, however, because of the magnitude of the inter-relations between the many components that make up complex systems that they may not be grasped by a group of minds engaged in such a discussion.<sup>36</sup>

The logistical problems of ecological deliberation are further revealed when one examines the 'deliberative designs' that are advocated. It is never suggested that all or even a majority of the relevant populations will be involved in the requisite policy making. Instead, the devices proposed include 'citizens' juries', 'community workshops' or 'focus groups'—small groups of citizens randomly selected from the populations concerned.<sup>37</sup> Such groups are to make comprehensible the complex interrelationships which permeate ecological and economic systems that are held beyond the comprehension of professional technocracy. For the reasons outlined in the previous paragraph, these claims seem questionable. How, for example, are the members of citizens' juries to learn reflexively about the quality of their decisions when there is no equivalent of the profit and loss account and the constant relational feedback (positive and negative) provided by a set of relative prices which can 'test' the quality of the choices made? Similarly, how are voters to make meaningful judgements on the performance of such processes if the actors concerned may be attempting to engage in a process

that may be beyond anybody's comprehension? One might also ask why the population in general should feel the sense of empowerment that is often claimed. It is far from clear why the multitude of people, who cannot for logistical reasons be involved, should feel any more 'empowered' than they might under the rule of technocratic procedures.

Given that 'the environment' is not an all-or-nothing good, but a bundle of different goods, it is hard to see how even relatively simple communication/coordination problems could be adequately addressed by the Green deliberativist approach. To learn, for example, that some members of a citizens' jury would prefer that rivers be kept clean, whilst others are prepared to tolerate a diminution of water quality, is to learn very little at all. How clean is clean? How do the environmental costs of pollution vary from one river to another? For what combination of purposes are rivers to be used? Which of all the available pollution control remedies are the most effective? Such questions will of course, be multiplied many times over when the choice is between the vast array of resource uses that make up a complex economy, the myriad possible combinations of such uses and the complexity of their interactions with the natural world. Put simply, without the information provided by a set of market generated relative prices, it will be virtually impossible for participants effectively to communicate their values to each other and hence to find ways of 'integrating' these values with those of their fellows.

From a Hayekian perspective, therefore, rather than seeking to manage social and environmental systems according to some holistic plan, it may be better to rely on impersonal, self-organising mechanisms to bring about the necessary coordination. As both Hayek's work and recent developments in chaos and complexity theory suggest, self-organisation is a conceptual idea that may be more appropriate to complex orders whose particular characteristics are not the intended outcome of the actors who make up the relevant order.<sup>38</sup> As Di-Zerega points out, self-organisation refers to those non-reductionist processes wherein relatively simple reactions by the components of a system result in complex patterns of order far beyond the capacity of each of the component parts to construct mechanically. Ecosystems exemplify self-organisation, for the principles generating ecological order are completely unknown to most beings following them. Such orders arise where the individual participants are involved in coordinative processes, the patterns of which are far too complex for them to grasp.<sup>39</sup>

Seen in this context, the impersonal, price-guided market may be much more akin to complex social and environmental orders than the consciously directed model of deliberative governance put forward by many Greens. Whilst individuals and firms in a market economy are price 'makers', rather than the price 'takers' of neoclassical theory, in the long run no group can control or direct prices (*pace* the long run decline in the fortunes of OPEC). In turn, the constant process of feedback provided by the changing structure of relative prices brings together dispersed knowledge and facilitates a degree of coordination that may be greater than could be achieved if those concerned had sought to plan the outcome in advance. The most that can be understood about such spontaneous orders are the general principles (such as the tendency for prices to rise when

demand exceeds supply, or the process of ecological succession) which connect the multitude of component parts. How specific individual acts of coordination will come about, however, may never be known in sufficient detail.<sup>40</sup>

It is, of course, their largely impersonal character that Green enthusiasts for deliberative democracy dislike most about markets. From a Hayekian perspective, however, this impersonality should not be seen as purely a product of market capitalism but as an inevitable feature of an advanced mass society. It may, therefore, be misplaced to attack supposedly ‘abstract’, ‘dis-empowering’ systems such as the market and to suggest that we can rely on discursive face-to-face contacts as a significant coordinating mechanism beyond the confines of very small groups.

Even if, for the sake of argument, it is accepted that discursive coordination may be possible in small group settings, the epistemological problems highlighted by the Hayekians are simply raised again when the thorny issue of inter-community coordination is confronted. The economies and environments of different local communities are interlinked in a myriad of flows, which may be far too complex to enable coordination through conscious means. This problem is particularly apparent for those Green writers who do not wish to abolish the market altogether. Barry, for example, argues that markets should be tolerated at the ‘local scale’ (in so-called Local Exchange Trading Systems or LETS), but with trans-local and international trade largely eliminated.<sup>41</sup> As such, this position is scarcely distinguishable from isolationist autarky.<sup>42</sup> In order to avoid the ‘dis-empowering’ overtones of relying on the fully developed markets that would be required to coordinate relationships exceeding the scale of a village, Barry is prepared to abandon such relationships in their entirety. This is, to say the least, a strange position for an advocate of communicative rationality—why prevent trade and communication between different communities and cultures and the process of mutual enrichment that results?<sup>43</sup>

Similar problems are evident in the unresolvable contradictions besetting the eco-anarchist<sup>44</sup> and eco-socialist<sup>45</sup> literatures, which for all their emphasis on ‘local participation’ favour some form of ‘strategic planning’ (usually in the guise of ‘democratic inter-community federations’) to ‘coordinate’ what might otherwise be a disparate and inconsistent set of local agendas. If complex inter-community relations are not to be coordinated through impersonal market forces then at some point recourse must be made to some central ‘coordinating’ authority—a position that would seem radically at odds with the supposed goal of ‘empowering’ local communities. It is, however, precisely this sort of central planning, which the Hayekian account and the actual experience of attempts at ‘integrated environmental policies’ suggest are prone to the severe epistemological difficulties discussed above. In markets, by contrast, the constant process of positive and negative feedback embodied in the structure of relative prices facilitates a process of mutual self-adjustment between people who never actually meet and cannot know in sufficient detail the precise circumstances of others.

None of the above is to suggest that no information can successfully be communicated via public discourse and debate. As Hayek repeatedly emphasised, language and discourse are also a form of spontaneous order and evolve

without conscious social control.<sup>46</sup> Moreover, deliberative democrats are surely right when they emphasise the coordinative significance of dialogue in many economic relationships.<sup>47</sup> Gossip, for example, is often an important source of knowledge about new techniques, prices and production processes, as well as about the plans of competitors. As one Hayekian puts it,

Market institutions are not the result of atomistic individuals responding to a given array of prices, but the result of individuals already involved in truly dialogical relationships. Trade journals, industry studies, marketing agreements, business lunches, conference calls, higgling and haggling, the interpretation of accounts and so forth are all part of the grand conversation of the market place.<sup>48</sup>

One might also add membership of environmental and religious groupings, the purchase of 'lifestyle' magazines, books and other spontaneous public fora, all of which transmit information verbally and provide a cultural/dialogical backdrop within which the market economy operates.

Whilst recognising the significance of dialogical processes, what is fundamentally at issue from a Hayekian perspective is that there are important limits to the amount and type of information that can successfully be communicated in this way. Verbal knowledge communication in contexts such as business networks or the process of academic debate is effective in so far as it is focussed on a relatively narrow and circumscribed set of issues. In academia, for example, discursive knowledge transmission is possible because the terms of debate tend to be confined within what are fairly tight theoretical and disciplinary boundaries.<sup>49</sup> Severe problems arise, however, when attempts to communicate knowledge and to coordinate decision making through discursive means are extended more widely to embrace more complex sets of issues. This is, however, precisely what Green deliberativists wish to pursue through the development of 'holistic' or 'integrated' environmental policies.

Habermasian Greens such as Dryzek tend to see markets as abstract systems, which 'get in the way' or 'subvert' dialogical processes in some fundamental sense.<sup>50</sup> From a Hayekian perspective, by contrast, market prices act as important 'aids to the mind', conveying otherwise inarticulable knowledge about economic relations in ways which allow for much wider, more complex communicative social relations than would be possible through purely discursive means. This very point appears to be accepted by Habermas himself, when he suggests that the complexity of modern systems would have to be sacrificed if a completely democratic, dialogical model of social democracy were actually to be instituted.<sup>51</sup> For Habermas, a shift to an all-encompassing model of democratic participation at every level of decision making is incompatible with a complexly interrelated economic system—hence the call for social democrats to limit discursive decision procedures to the central 'steering mechanisms' of the political economy. It is far from clear, therefore, why markets should be regarded so sceptically by Greens and participatory socialists. If it is conceded that markets allow the development of much richer, more complex sets of social relations which extend the scope for communicative rationality beyond discursive

sive means, then why should they not be utilised to facilitate the development of this rationality to the fullest possible degree? As Prychitko puts it, 'why should a restricted dialogue, one which is not allowed the full play to yield market prices, be thought of as the more rational mechanism with which to conduct economic activity?'<sup>52</sup>

It is this propensity for the institutions advocated by Green theorists actually to reduce information flows and hence thwart the desired process of intersubjective learning, which provides the critical element in the Hayekian case against an over-reliance on deliberative democracy. At the core of Hayek's critique of government planning is his emphasis on the significance of tacit knowledge. This refers to time- and place-specific information that cannot be articulated in verbal form. Much of this information is inherently private in character—knowledge of the phenomenal pictures that exist within the individual mind and which no one else discerns. Tacit knowledge of this species is epitomised in a person or group of persons 'being in the right place at the right time', exhibiting 'flair and intuition' or 'knowing a particular market' and constitutes the essence of creative entrepreneurship.<sup>53</sup> Faced with the same set of 'facts' some individuals will perceive creative opportunities, where others see nothing.

According to Hayek, individuals are best able to deploy tacit knowledge for social good, when they are the least constrained by collective/majoritarian decision procedures in which this knowledge is likely to be diluted or lost. Of course, collective forms of decision abound in all aspects of life—in company boardrooms, for example. What is crucial, however, is that there are clear lines of responsibility linking decisions and the relevant knowledge to specific individuals/groups, so that people have a clear feedback mechanism to learn about the quality of their own decisions and knowledge. Private property rights and the account of profit and loss provide such a link and hence facilitate social learning. In addition, property rights afford space to try out eccentric and innovative ideas, the merits/demerits of which people occupying other phenomenal spaces cannot discern. Knowledge of this sort cannot be communicated by verbal means, but is only revealed through action. It is only when private projects are put into practice that the relevant information is revealed. A learning process may then be set in motion as previously indiscernible successes are imitated and previously indiscernible errors can be avoided.<sup>54</sup>

The detrimental environmental effects which can follow from the inability of collectivist institutions to communicate knowledge effectively are well illustrated by the often, perverse results which have resulted from the introduction of environmental controls on 'moral' grounds. Consider regulations, often favoured by Greens, which mandate a specified proportion of recycled materials in various products. In many instances such controls have actually led to worse environmental outcomes, because the finished products have turned out to be of a poorer quality (inadequate strength, for example). As a consequence, producers have responded by raising inputs (though not the proportion) of non-recycled elements in order to maintain product standards. The result has been the production of goods which use more total inputs than might otherwise have been the case.<sup>55</sup>

References to the significance of tacit knowledge by deliberative democrats are particularly surprising, since by definition much of the relevant information

cannot be communicated linguistically. If people are consistently allowed to veto the exercise of private property rights through majoritarian democracy and an 'extension of the public sphere', then the relevant discovery process may be thwarted as the range of possible plans that may be implemented is reduced. Equally, the extension of third party decision rights to actors who are not themselves held financially responsible for their actions blurs the lines of responsibility linking the use of knowledge to outcomes and hence may inhibit social learning. The greater the extension of social democratic controls over property rights, the more difficult it becomes to judge which particular bits of knowledge are appropriate to the tasks in hand. In general, it is much easier to generate clear feedback signals and to assess cause/effect relationships in a market context, such as the link between product quality and a particular producer, than to link the quality of complex social outcomes to public policy decisions.

The repeated emphasis on the importance of 'consensus building' by the Habermasian Greens is also problematic from a Hayekian point of view.<sup>56</sup> If no new actions are to be allowed to proceed until there is a majoritarian consensus (a major feat in itself given the difficulties of securing consensus even in small group settings such as the running of academic departments or company boardrooms), then innovation and entrepreneurship are likely to be thwarted. The essence of creative entrepreneurship in the economy and other contexts such as science is to break with the consensus position. For all the emphasis on the importance of diversity and localism by deliberativists, it is hard to see how such diversity would be possible if majoritarian consensus is the primary decision rule. There comes a point, therefore, where the use of the 'voice' mechanisms that characterise collective decision procedures need to be backed up by the 'exit' mechanisms that are more evident in private markets.<sup>57</sup>

It is the epistemological significance of exit and competition that is completely missed by most Green theorists, who equate the case for markets with a worldview that posits selfish egoists ruthlessly seeking to destroy the opposition in a Hobbesian jungle.<sup>58</sup> Seen from this perspective, competition is the antithesis of the other regarding, cooperative values considered essential for the advancement of a more ecologically sensitive age. From a Hayekian perspective, by contrast, competition is not antithetical to cooperative endeavour—even in a world of perfect altruism, market competition would be necessary on purely epistemological grounds. One might even argue that markets would work more effectively if people actually were altruistic—no need to worry about free-riders!<sup>59</sup> In a world of uncertainty and diffuse, imperfect knowledge, what the market process involves is competition between different types of cooperation, allowing social experimentation and a discovery process to unfold that can reveal which particular ways of organising production and consumption work best. It is precisely this process of entrepreneurial experimentation and discovery which is thwarted by attempts to force supposedly 'cooperative' endeavours into a single plan.

From a Hayekian perspective, the market economy does not act to maximise or optimise anything or to fulfil a single hierarchy of ends.<sup>60</sup> Rather, it facilitates an open-ended process of experimentation to discover both ends and means in

an uncertain world, where it is difficult enough for people to comprehend their own interests, let alone the 'public interest'. Market competition (i.e. competition in persuasion) provides a forum for experimentation, fosters mutual awareness between individuals who may never actually meet—through the generation of prices—and hence enables a degree of coordination between people with disparate and perhaps inconsistent plans. The market process, therefore, acts as a form of 'surrogate debate' that, for the epistemological reasons discussed earlier, facilitates a wider range of options to be tried and tested than might ever be achieved through the processes of formal political communication.<sup>61</sup>

In the light of the above, the traditional concerns of both Greens and the left over excessive inequality and unequal 'power relations' may be better addressed through redistributive taxation, rather than attempts to restrict private property rights and transform the process of decision making itself along social democratic lines. In this way, greater equality in material resources would allow the subjective values of those individuals with previously low incomes to be given greater weight in an otherwise unregulated market.

### **Markets, the environment and Hayekian political economy**

If, as the Hayekian analysis suggests, market institutions provide an invaluable communicative function, then it follows that the most appropriate way to communicate environmental information would be to allow the development of markets in environmental goods. Within this context, the Coasian tradition has argued for the definition and enforcement of an adequate system of property rights in order to facilitate a 'market in externalities'. If an individual or group values an environmental characteristic and someone else has the right to pollute, then the individual or group concerned may purchase the relevant rights, and vice versa. According to Coase, the final environmental outcome will be the same, irrespective of who owns the initial set of property rights. In this situation, the role of government is confined to the enforcement of contractual bargains struck between private parties and the provision of a legal system which adjudicates disputed property rights in courts.<sup>62</sup>

The Coasian perspective has been criticised as irrelevant to many environmental problems because it assumes the absence of transaction costs in the definition and enforcement of property rights.<sup>63</sup> As his subsequent followers have pointed out, however, Coase did not argue that transaction costs present no obstacles to market exchange, but highlighted the presence of these obstacles in any institutional setting.<sup>64</sup> The issue, therefore, becomes one of comparing different institutions and their relative ability to overcome such problems. In the case of deliberative democracy, for example, setting aside the epistemological deficiencies discussed above, there would be massive transaction costs involved in setting up the relevant public fora—organising hundreds of thousands of 'stakeholders' and finding committee rooms big enough to accommodate such numbers, to name the most obvious. Given the combination of epistemological and transaction costs problems afflicting such institutions, there would seem to be a powerful case for relying on markets, wherever it is possible to do so.

One example of the communicative advantages of environmental markets can be seen in the case of water policy. Evidence suggests that where private property arrangements have been allowed to emerge, especially with regard to river management, there have been considerable improvements in terms of the maintenance of fish stocks and the reduction of pollution. In both Britain and Iceland, for example, private fishing rights to rivers are widespread and an extensive angling market has developed. Riparian owners are able to charge angling clubs for the right to fish and in some cases clubs have purchased stretches of the rivers themselves. In turn, the prices generated in such markets have provided an important way of communicating environmental values—signalling to owners the demand for well-stocked and clean water. As a consequence, from a position in the 1950s where trout and salmon fishing was the preserve of an elite few, by the early 1990s such opportunities had become readily available in and around most British towns. Correspondingly, there have been substantial improvements in water quality with owners, such as the Anglers Cooperative Association, taking successful legal actions against instances of noncontracted pollution.<sup>65</sup>

Unlike ‘command and control’ regulations, under the property rights approach the character of contractual arrangements, and the prices charged, varies from place to place, depending on the nature of the problem concerned. Bargaining in water markets, therefore, enables a discovery process to unfold, generating prices which communicate, albeit ‘imperfectly’, environmental information. This includes the varied effects of pollutants in different rivers, different levels of recreational pressure from anglers on different rivers or on stretches of the same river and the various water purification technologies which can be adopted. It is precisely this sort of information which is likely to be lost under deliberative institutions, as the pressure for majoritarian ‘consensus-building’ results in a ‘one size fits all’ regime. In the USA, for example, the so-called Public Trust doctrine has, in many states, forbidden the private ownership of water rights and has thwarted the development of water markets (a situation of which Habermasian Greens would doubtless approve<sup>66</sup>). The resulting command and control approach to river management has continued to be reflected in terms of periodic over-fishing and relatively poor water standards.<sup>67</sup>

Anderson and Leal have catalogued numerous examples of environmental goods supplied in private markets, including wildlife conservation, forest management and the protection of scenic views.<sup>68</sup> In addition to this work, Foldvary has highlighted a theory of territorial goods provision that may offer the potential to manage many other environmental externalities across a range of territorial scales.<sup>69</sup> Foldvary argues that many collective goods are in practice ‘territorial goods’ and are excludable by definition. The benefits of a scenic view or open space, for example, can often be ‘tied in’ to the provision of other goods, such as leisure or residential environments. So long as the relevant area is owned by an individual or group/cooperative, people must reveal their preferences to gain access and the ‘free rider problem’ can be resolved.<sup>70</sup> Shopping centre merchants, for example, provide an array of ‘collective’ goods through the market, such as malls, security forces, parking lots and a pleasant shopping environment, ‘tied in’ to the purchase of private merchandise. As

Schmidtz notes, 'one does not have to be a visionary to realise that market forces can in theory provide shopping malls, but the point is that there is no *a priori* reason why similar structural tie-ins could not lead to the provision of a variety of other public goods as well'.<sup>71</sup>

This approach is not dissimilar to the 'common property regimes' examined by Ostrom.<sup>72</sup> In the proprietary community model individuals are, in effect, contracting into a set of collective or shared private property rights—offered for profit by institutional entrepreneurs.<sup>73</sup> People enter into a voluntary contract to sacrifice complete control over decisions relating to their property to the principles of governance laid down in the proprietary contract. The communities examined by Foldvary, for example, marketed 'constitutional provisions' for the settlement of neighbourhood disputes and laid down a set of rules and procedures (voting rules etc.), by which the members of the community could change the terms of collective control.<sup>74</sup>

From a Hayekian perspective, the great advantage of the proprietary model is that it may facilitate competition and experimentation between communities and lifestyles offering various bundles of collective and individual private property rights and different rules for environmental management on a range of territorial scales. Which particular mix of individual and common property rights works best cannot be known in advance, but may be discovered through a process of entrepreneurial trial and error. Just as the optimum size of a firm is not something that can be known in advance of competition, so the optimum scale of a proprietary community or common property regime may be discovered and rediscovered through a process of organisational trial and error in the market. In this way the proprietary community model may offer considerable advantages over conventional local authority forms of governance, which have seen boundaries imposed on communities for reasons which have little to do with their efficacy in improving environmental quality. The proprietary model, whilst allowing an element of collective control, provides a clear feedback link to the knowledge and decisions of institutional/property rights entrepreneurs through the account of profit and loss, facilitates consumer choice between different property rights structures and hence enables the conditions for social learning. Rather than seeking consciously to 'integrate' the actions of a range of diverse actors into a holistic plan, the property rights approach may facilitate a wider variety of plans on a range of territorial scales. These plans may then be coordinated through a self-organising process of mutual adjustment as the structure of relative prices paid for differing bundles of property rights communicates, at least to some extent, the value placed on environmental assets by dispersed individuals who may never actually meet.

Notwithstanding the untapped potential for property rights approaches, it must be recognised that there is likely to remain an important category of goods where 'market failure' may indeed remain pervasive. Prime candidates would appear to be large-scale transboundary goods such as air quality management and biodiversity preservation, where prohibitive transaction costs seem likely to be the norm. In these circumstances, the Hayekian perspective is not opposed to the state laying down a set of minimal environmental standards (arrived at through deliberative means) within which the market can be allowed to operate. What is

crucial, however, is that beyond laying down such basic regulatory rules, no attempt should be made to develop an holistic 'environmental plan'. Rather, the maximum scope should be allowed for experimentation and innovative property rights solutions to facilitate coordination through the spontaneous forces of markets. More often than not, government intervention extends well beyond these minimalist functions and indeed has actively suppressed the emergence of private approaches through the continued adherence to environmental policy prescriptions which do not allow markets to develop.

Finally, it should be recognised that where the privatisation of environmental assets and the development of 'real' markets is simply not viable, a powerful case remains for relying on 'market-like' policy tools. There has been a tendency for many Greens to criticise schemes such as tradable permits and to favour command and control mechanisms, on the grounds that market-based instruments are rooted in instrumental rationality. Dryzek, for example, argues that, although such tools may be more 'efficient'—because, under tradable permits, firms have a constant financial incentive to reduce pollution—command and control mechanisms are preferable on 'moral' grounds. According to this view, orthodox regulation is more desirable because it does not pander to the self-interest of individuals and firms (i.e. the incentives that they face) and instead may encourage a greater degree of social communication in search of the common good.<sup>75</sup>

Dryzek, however, mistakenly conflates the case for markets with arguments from incentives. Whilst such arguments have been well to the fore in recent debates, the case for market-based instruments is by no means exhausted with the self-interest assumption. On the contrary, as this article has sought to show, from a Hayekian perspective the advantages of markets are primarily communicative. Market-based instruments, such as permits, allow firms a greater degree of flexibility and a wider variety of options as to how they fulfil pollution quotas. Command and control mechanisms, by contrast, especially when they mandate the use of specified production techniques, reduce the possibilities for social experimentation and hence may thwart the discovery of new and better methods, which may be a flicker in an entrepreneurial eye. By reducing the range of production possibilities and hence the amount of knowledge brought into the public realm, command and control methods may actually reduce both the level and quality of social discourse, irrespective of whether those concerned are selfish egoists or paragons of environmental virtue.

## Conclusion

This article has sought to develop a Hayekian critique of Green/deliberative models of democracy. The analysis suggests that, whilst representing an improvement on technocratic forms of decision making, such models are neglectful of the informational and coordinative limits of discursive political processes. In addition, the article suggests that the normative institutional arrangements advocated by many Green theorists may be at odds with much of their epistemological basis. More specifically, recognition of the holistic and systemic nature of economic and environmental problems does not imply support for

attempts to manage such problems on a similarly holistic basis. On the contrary, the inherent complexity and interrelatedness of these issues may mean that they are beyond the effective scope of conscious social control. It may, therefore, be more appropriate to rely, wherever possible, on impersonal, self-regulating markets. What precisely the ideal political/institutional framework is within which environmental markets can function most effectively is a matter for ongoing empirical inquiry. It is the principal conclusion of this article, however, that the subjection of markets to a still greater array of social democratic controls is unlikely to be appropriate to this task.

## Notes

1. I have worked from within the instrumentalist paradigm and do not wish to abandon it. See Mark Pennington, *Planning and the Political Market: Public Choice and the Politics of Government Failure* (Athlone Press, 2001). Rather, the arguments set out here are presented as recognition of the limits to instrumental reason.
2. David Pearce, Anil Markandya & Edward Barbier, *Blue Print for a Green Economy* (Earthscan, 1989).
3. Richard Stroup & John Baden, *Bureaucracy versus the Environment* (University of Michigan Press, 1981); William Mitchell Randy Simmons, *Beyond Politics* (Westview, 1995); and Pennington, *Planning and the Political Market*.
4. John Dryzek, 'Foundations for Environmental Political Economy: The Search for Homo Ecologicus?', *New Political Economy*, Vol. 1, No. 1 (1996), p. 27.
5. John Dryzek, *Rational Ecology: Environmentalism and Political Theory* (Blackwell, 1987); John Dryzek, 'Green Reason: Communicative Ethics for the Biosphere', *Environmental Ethics*, Vol. 12 (1990), pp. 195–210; John Dryzek, 'Political and Ecological Communication', *Environmental Politics*, Vol. 4, No. 4 (1995), pp. 13–30; Dryzek, 'Foundations for Environmental Political Economy'; and John Dryzek, *The Politics of the Earth* (Oxford University Press, 1997).
6. Frank Fischer, 'Citizen Participation and Democratisation of Policy Expertise: From Theoretical Inquiry to Practical Cases', *Policy Sciences*, Vol. 26 (1993), pp. 165–87; Michael Jacobs, 'Environmental valuation, deliberative democracy and public decision-making institutions', in: John Foster (ed.), *Valuing Nature?* (Routledge, 1997); Douglas Torgerson, *The Promise of Green Politics: Environmentalism and the Public Sphere* (Duke University Press, 1999); and John Barry, *Rethinking Green Politics* (Sage, 1999).
7. Dryzek, 'Foundations for Environmental Political Economy', p. 28.
8. *Ibid.*
9. Jacobs, 'Environmental valuation', p. 219.
10. Dryzek, 'Foundations for Environmental Political Economy', p. 28.
11. See, for example, Mitchell & Simmons, *Beyond Politics*; and Pennington, *Planning and the Political Market*.
12. Dryzek, *Rational Ecology*, pp. 10–11.
13. Barry, *Rethinking Green Politics*, p. 215.
14. Dryzek, *Rational Ecology*; Dryzek, 'Foundations for Environmental Political Economy'; Jacobs, 'Environmental valuation'; Torgerson, *The Promise of Green Politics*; and Barry, *Rethinking Green Politics*.
15. See, for example, the essays in Friedrich Hayek, *Individualism and Economic Order* (Chicago University Press, 1948).
16. Peter Boettke, 'What Went Wrong With Economics', *Critical Review*, Vol. 11 (1997), pp. 10–64; James Buchanan, *Cost and Choice* (Chicago University Press, 1969); James Buchanan & Victor Vanberg, 'The Market as a Creative Discovery Process', *Economics and Philosophy*, Vol. 7 (1991), pp. 167–86; and George Shackle, *Epistemics and Economics* (Cambridge University Press, 1972).
17. Gerald O'Driscoll & Mario Rizzo, *The Economics of Time and Ignorance* (Blackwell, 1985).
18. Hans-Georg Gadamer, *Truth and Method* (Crossroads, 1985).
19. Gary Madison, *The Political Economy of Civil Society and Human Rights* (Routledge, 1998).
20. Friedrich Hayek, 'Individualism: true and false', in: Hayek, *Individualism and Economic Order*; Friedrich Hayek, *The Sensory Order* (University of Chicago Press, 1952); and Friedrich Hayek, *The Counter-Revolution of Science* (Routledge, 1957).

21. Hayek, 'Individualism: true and false'.
22. Friedrich Hayek, 'The results of human action but not of human design', in: Friedrich Hayek, *Studies in Philosophy, Politics and Economics* (Routledge, 1967).
23. Peter Boettke, 'Interpretive reasoning and the study of social life', in: David Prychitko (ed.), *Individuals, Institutions and Interpretations: Hermeneutics Applied to Economics* (Avebury, 1990).
24. Friedrich Hayek, 'Economics and knowledge', in: Hayek, *Individualism and Economic Order*; and Friedrich Hayek, 'Competition as a discovery procedure', in: Friedrich Hayek, *New Studies in Politics, Economics and the History of Ideas* (Routledge, 1978).
25. Shackle, *Epistemics and Economics*; and Buchanan & Vanberg, 'The Market as a Creative Discovery Process'.
26. Hayek, 'Economics and knowledge'; Hayek, 'Competition as a discovery procedure'; and Don Lavoie, *Rivalry and Central Planning* (Cambridge University Press, 1985).
27. Whilst epistemologically and conceptually distinct, there is an important link to be made from a classical liberal perspective between Hayekian arguments against planning and those of the public choice theorists—it is because of the epistemic difficulties of knowing what the 'public interest' actually is that individuals tend to act according to the interests that they are more likely to know, i.e. their own interests and those of their immediate circle.
28. In the Austrian account of markets all individuals, whether manager/entrepreneurs, workers or consumers are considered to act entrepreneurially—i.e. that they exhibit a sensitivity or alertness to new opportunities and instances of dis-coordination—such as spotting the potential demand for a new product, or the existence of alternative job opportunities or sources of cheaper products.
29. Hayek, 'Economics and knowledge'; Hayek, 'Competition as a discovery procedure'; Israel Kirzner, *Discovery and the Capitalist Process* (Chicago University Press, 1985); Israel Kirzner, *The Meaning of Market Process* (Routledge, 1992); and Israel Kirzner, 'Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach', *Journal of Economic Literature*, Vol. 35 (1997), pp. 66–85.
30. Ronald Coase, 'The Nature of the Firm', *Economica*, Vol. 4 (1937), pp. 386–405.
31. Hayek, 'Competition as a discovery procedure'; Kirzner, *Discovery and the Capitalist Process*; Kirzner, *The Meaning of Market Process*; and Kirzner, 'Entrepreneurial Discovery and the Competitive Market Process'.
32. Brian Loasby, *The Mind and Method of the Economist* (Edward Elgar, 1989), p. 188.
33. For empirical evidence on these trends, see Yale Brozen, *Competition, Mergers and Public Policy*, (Macmillan, 1982); and David Steele, *From Marx to Mises* (Open Court, 1992). This is not to say that markets in reality work as well as they actually might and that problems of monopoly power are of no significance. Rather it is to note that there is no inherent tendency towards monopoly in markets. In so far as monopoly is indeed an issue, more often than not it is a product of state regulation (often lobbied for by incumbent producers) that acts to restrict market entry.
34. Judith Rees, *Natural Resources: Allocation, Economics and Policy* (Routledge, 1990), pp. 376–82.
35. Dryzek, *Rational Ecology*; Dryzek, 'Green Reason'; and Dryzek, 'Political and Ecological Communication'. See also Barry, *Rethinking Green Politics*; and Torgerson, *The Promise of Green Politics*.
36. Friedrich Hayek, 'The theory of complex phenomena', in: Hayek, *Studies in Philosophy, Politics and Economics*; Friedrich Hayek, *Rules and Order* (Routledge, 1973); and Friedrich Hayek, *The Fatal Conceit: The Errors of Socialism* (Routledge, 1988).
37. Dryzek, *Rational Ecology*; and Dryzek, 'Political and Ecological Communication'.
38. Hayek, 'The theory of complex phenomena'; Hayek, *Rules and Order*; Hayek, *The Fatal Conceit*; and David Parker & Ralph Stacey, *Chaos, Management and Economics: The Implications of Non-Linear Thinking* (Institute of Economic Affairs, 1994).
39. Gus Di-Zerega, 'Social Ecology, Deep Ecology and Liberalism', *Critical Review*, Vol. 6, Nos. 2–3 (1993), pp. 305–70.
40. Hayek, 'The theory of complex phenomena'; Hayek, *Rules and Order*; and Hayek, *The Fatal Conceit*.
41. Barry, *Rethinking Green Politics*, ch. 6.
42. For some unspecified reason, Barry maintains otherwise. See *ibid.*, p. 165.
43. In so far as Barry answers this question, it is that production beyond the 'local scale' is inherently 'unsustainable'. It would appear, therefore, that the 'appropriate scale' of production is not something to be determined intersubjectively via communicative rationality, but according to some objective criteria in Barry's possession. See *ibid.*

44. See, for example, Murray Bookchin, *The Ecology of Freedom* (Cheshire Books, 1982); and Murray Bookchin, *The Modern Crisis* (Black Rose Books, 1987).
45. See, for example, André Gorz, *Ecology as Politics* (Pluto Press, 1980); Martin Ryle, *Ecology and Socialism* (Century Hutchinson, 1988); and David Pepper, *Eco-Socialism: From Deep Ecology to Social Justice* (Routledge, 1993).
46. Hayek, *Rules and Order*; and Hayek, *The Fatal Conceit*.
47. See, for example, Ash Amin & Nigel Thrift (eds), *Globalisation, Institutions and Regional Development* (Oxford University Press, 1994).
48. David Prychitko, 'Marxism and Decentralised Socialism', *Critical Review*, Vol. 2, No. 4 (1987), pp. 137–8.
49. Jeremy Shearmur, *Hayek and After: Classical Liberalism as a Research Programme* (Routledge, 1996).
50. Dryzek, *Rational Ecology*.
51. See Peter Dews (ed.), *Autonomy and Solidarity* (Verso, 1986).
52. Prychitko, 'Marxism and Decentralised Socialism', p. 132.
53. Hayek, 'Individualism; true and false'; Hayek, 'Economics and knowledge'; Hayek, 'competition as a discovery procedure'; and Michael Polanyi, *The Logic of Liberty* (Chicago University Press, 1951).
54. Hayek, 'Individualism: true and false'; Hayek, 'Economics and knowledge'; Hayek, 'competition as a discovery procedure'; Polanyi, *The Logic of Liberty*; and Kirzner, *Discovery and the Capitalist Process*.
55. Julian Morris, *Green Goods? Consumers, Product Labels and the Environment* (Institute of Economic Affairs, 1997).
56. See, for example, Jacobs, 'Environmental valuation'.
57. Albert Hirschman, *Exit, Voice and Loyalty* (Harvard University Press, 1970).
58. Bookchin, *The Ecology of Freedom*; Bookchin, *The Modern Crisis*; and Dryzek, 'Foundations for Environmental Political Economy'.
59. Di-Zerega, 'Social Ecology, Deep Ecology and Liberalism'.
60. Hayek, 'Competition as a discovery procedure'; and Buchanan & Vanberg, 'The Market as a Creative Discovery Process'.
61. Shearmur, *Hayek and After*.
62. Ronald Coase, 'The Problem of Social Cost', *Journal of Law and Economics*, Vol. 3 (1960), pp. 1–44.
63. See, for example, D. Turner, David Pearce & Ian Bateman, *Environmental Economics: An Elementary Introduction* (Harvester, 1994).
64. Carl Dahlman, 'The Problem of Externality', *Journal of Law and Economics*, Vol. 22 (1979), pp. 141–62.
65. Roger Bate, 'Water Pollution Prevention: A Nuisance Approach', *Economic Affairs* (April 1994), pp. 13–14; and Michael De Alessi, *Fishing for Solutions* (Institute of Economic Affairs, 1998).
66. Dryzek, 'Foundations for Environmental Political Economy', pp. 36–8.
67. Terry Anderson & Donald Leal, *Free Market Environmentalism* (Pacific Research Institute for Public Policy/Westview, 1991), ch. 8. Some of the difference in water quality between British and American rivers may be accounted for by the shorter, faster flowing nature of the former. The structure of property rights does, however, also appear to be a key factor. It is partly as a result of the emerging water market that British water quality has improved over time. See Bate, 'Water Pollution Prevention'. Similarly, there is evidence that in those limited parts of the USA which are immune from the Public Trust doctrine and where markets have developed, water and fishing conditions have improved substantially. See Anderson & Leal, *Free Market Environmentalism*, ch. 8.
68. Anderson & Leal, *Free Market Environmentalism*; and Terry Anderson & Donald Leal, *Enviro-Capitalists* (Rowman & Littlefield, 1997).
69. Fred Foldvary, *Public Goods and Private Communities* (Edward Elgar, 1994).
70. See also James Buchanan & William Stubblebine, 'Externality', *Economica*, Vol. 29 (1962), pp. 371–84.
71. David Schmidtz, 'Market Failure?', *Critical Review*, Vol. 7 (1994), pp. 525–37.
72. Ellinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge University Press, 1990).
73. Robert Nelson, *Zoning and Property Rights* (Harvard University Press, 1977); and Foldvary, *Public Goods and Private Communities*. As now recognised in the property rights literature, 'common property' regimes are radically different from the 'open access' regimes associated with the 'tragedy of the commons'. The latter refers to a situation where a resource or asset lacks any form of organisational structure to manage the resource in question. 'Common property' regimes, however, refer to a position where a resource is managed by some form of cooperative organisation. McKean and Ostrom have described 'common

property' regimes as approximating a model of shared private ownership. See Margaret McKean & Ellinor Ostrom, 'Common Property Regimes in the Forest: Just a Relic from the Past?', *Unasylva*, Vol. 46 (1995), pp. 3–15.

74. Foldvary, *Public Goods and Private Communities*.

75. Dryzek, 'Foundations for Environmental Political Economy', pp. 36–8.