

Green economics: putting the planet and politics back into economics

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Green economics is arising from a study of the economy that takes a philosophical position characterised by a deep respect for nature. It is primarily a system of ideas and principles, rather than a rationally argued intellectual position. Its ideas are powerful and influential on developments in policy and politics, but it is presently less well grounded in the academy. Green economists do not dwell overmuch on introspection and their method is implicit rather than explicit, relying on a grounded, embedded and phenomenological approach and rejecting the scientism and spurious objectivity of neoclassical economics. In this paper I outline four key issues central to a green study of the economy: the need to end economic growth; the importance of equality and questions of the just distribution of resources; the requirement to consider appropriate scale in economic decision-making; and the need to include multiple perspectives in the study of economics.

Key words: Green economics, Climate change, Economic growth, Steady-state economy, Sustainability, Social justice

JEL classifications: B20, B59, H23, Q57

1. Introduction

It is inherent in the methodology of economics to ignore man's dependence on the natural world. (E. F. Schumacher, *Small is Beautiful*, 1973, p. 46.)

Over the past few years the issue of climate change has moved from a peripheral concern of scientists and environmentalists to being a central issue in global policy making. This is but one of many indications that our economy is in fundamental conflict with our ecological systems; it was these indications that stimulated the development of a green approach to the economy. Greens have also been concerned about the way an economic system based on competition has led to widening inequalities between rich and poor on a global as well as a local scale, and the inevitable tension and conflict this inequality generates. This is, as I explain in Section 4, intrinsically related to the inability of the economy to stay within ecological limits, and hence the two motivations for the development of green economics are intertwined.

Manuscript received 1 July 2010; final version received 30 March 2011.

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* Roehampton Business School. I am grateful to the editors of the Special Issue and to the two anonymous referees for some very helpful comments, which have considerably strengthened the paper.

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The political response to the most obvious evidence of the confrontation between the neoclassical growth model and the environment was to invite a neoclassical economist to consider the economic consequences of climate change. The Stern Review (2007) took its intellectual framework solely from the neoclassical paradigm that may be argued to have led us into this crisis: Stern himself identifies climate change as the greatest ever example of market failure. Climate change is only one, although clearly the most serious one, of the many environmental crises we are facing. In the discourse of orthodoxy, each of these is an independent example of 'market failure', the solution being merely to strengthen property rights and extend the reach of the market, as in proposing carbon trading as a solution to climate change. For a green economist, in contrast, the market ideology itself is the failure, and beneath and behind that failure lays a deeper failing of our society to recognise and celebrate its place within a living, breathing planetary system.

As a result of the marginalisation of heterodox approaches within the university, the bulk of the work that I will report in this paper has been produced outside the academy. However, this does not diminish its importance; on the contrary, it accentuates the importance of rapidly changing the curricula in our universities so that the students we send forth into the world are equipped with the knowledge, skills and sensitivities to become ecologically virtuous citizens. In the economics field this underlines the importance of greater pluralism within economics education (Negru, 2009; Reardon, 2009) so that ecological and green approaches are included within standard economics courses rather than being banished to the margins of environmental studies.

This paper is by way of an introduction to green economics, an interpretation of economic life that is embedded in praxis but is finding its way into the academy. Section 4 offers a preliminary sketch of its central themes: the need to replace economic growth with ecological balance; the importance of sharing the planet's resources wisely and fairly; the key concern with scale; and the importance of reintroducing multiple perspectives into our consideration of economics. Before I reach this question of the 'what?' of green economics, I spend some time considering why this new subdiscipline has grown up (Section 2) and how green economists approach their study (Section 3).

2. Why green economics?

It is 36 years since Schumacher published *Small is Beautiful* and 20 years since the establishment of the International Society for Ecological Economics. In that time we have seen an acceleration of species loss, rapidly rising carbon dioxide emissions and the depletion of a range of essential resources. If the evidence of ecological damage were sufficient to change how the economy is structured, we would have expected to see a significant response on the part of policy makers before now. But the political establishment has been resistant to this change, largely because it includes policy prescriptions that are incompatible with capitalism: primarily the call for an end to economic growth and a move towards the steady-state economy (Cato, 2004A). Thus, my first contention is that it is not possible to have a green economics without it including a large measure of political economy.

Porritt summarises the motivation for the development of a distinctively 'green' approach to economics in his central question, 'is capitalism sustainable?': 'In the mainstream political and business discussions about sustainable development, the key question (are capitalism and sustainability mutually exclusive?) goes largely unasked.

In fact, it seems to be almost unaskable.’ His conclusion is that while ‘capitalism *as we know it today* would . . . appear to be incompatible within anything vaguely resembling sustainability’, nonetheless, since it is ‘the only game in town’, greens should work to assist the adaptation of capitalism into an environmentally friendly form (Porritt, 2005, pp. 86–7; emphasis added). Porritt identifies the key inspiration for green economists: that capitalism as an economic system is driving the ecological crisis. While green economists may debate whether or not they are anticapitalist (Cato, 2004A), the sort of capitalism that they are envisaging would not be recognisable in terms of capitalism as it exists today. The critique may range from the more shallow (the five capitals framework; Porritt, 2005, pp. 137–47) to the fundamental (the need for a fundamental reform of the money system; Robertson and Huber, 2000), but the system that all the economists cited in this chapter would accept as sustainable would not be one that today’s proponents of capitalism would recognise.¹

The more academically grounded green economists might take forward this critique to argue that the strength of globalised capitalism in the face of clear evidence of its destructive consequences ‘for people and planet’ is partly the result of its ideological support based on the hegemonic position of the neoclassical paradigm within the academy (Henderson, 1978). Far from the pluralism that might generate alternative explanations of the economy–environment relationship and potentially alternative solutions, the debate is narrowly framed in terms of market failures and market solutions, with very little space in most university curricula to question whether the market itself may be the source of the problem.

As a platform, this position shares some of the critique of ecological economics, especially the importance of ending economic growth and developing a steady-state economy. However, green economics is more socially engaged and considers the relationships between equity and sustainability to be inherent, and hence that we cannot achieve balance with the environment without social justice. As discussed further in Section 4, green economists are also likely to be actively engaged as politicians and campaigners, rather than finding their niche—and probably their livelihood—within an academic setting. While some green economists publish in the peer-review literature, others are engaged in the creative and influential work in alternative economics that is taking place outside of conventional academic discourse, and can be characterised as ‘civil society intellectuals or academic activists’ (Soderbaum and Brown, 2010, p. 193). Manfred Max-Neef (1992) has referred to his work as being that of a ‘barefoot economist’, and this phrase helps to encapsulate how green economists think of their work as being about social and economic change locally first, and theorising and academic debate second. Table 1 lists a number of leading green economists whose work, although influential on academics and on policy makers, has been produced in the setting of campaign groups or think-tanks rather than in universities.

As well as this work by individuals and pressure groups, green political parties are also leading the debate, which says much about the limitations of contemporary academic discourse. This origin in the world of practical politics and critical political economy also helps to distinguish green economics from ecological economics, which

¹ Although markets are a necessary feature of a capitalist system, we can also imagine many other designs of economic system that also involve markets as a primary distribution mechanism for certain types. Thus, as explained in Section 4, green economists would propose markets constrained by social laws and respectful of environmental limits.

Table 1. *Green economics flourishes outside the academy*

Economist	Subject area	Setting
James Robertson	Land value tax, ecotaxes, monetary reform	Independent author, founder of New Economics Foundation; The Other Economic Summit FEASTA, Dublin
Richard Douthwaite	Challenging of economic growth; economics of climate change; energy and economics	
Frances Hutchinson	Social credit, citizens' income, land tax	Social creditor; independent author
Colin Hines	Trade, localisation, climate change	Ex-Greenpeace, now independent author
Caroline Lucas	Trade, globalisation	Green Party and European Green Group
Jonathan Porritt	Environmentally friendly capitalism	Forum for the Future; Sustainable Development Commission
Nicholas Hildyard and Larry Lohman	Financial derivatives and carbon trading	The Corner House
Hazel Henderson	Localisation, 'the love economy'	Ethical Markets; independent author
David Fleming	Convivial economy; tradable emissions quotas	Lean Economy Connection

was born in the academy as an offspring of the marriage between economics and ecology. (For an account of the approaches towards the environment–economy tension from a range of perspectives, see Cato (2011).)

To conclude this section on why green economics has emerged, I would suggest that its motivation was the unresponsiveness of academic and professional economics to the ecological crisis. This also helps to explain its emergence in practical form and outside the academy. The limited progress of ecological economics within mainstream economics departments indicates the rigidity of the economics academy and the hegemony of neoclassical approaches within it. With their focus on markets and property rights, academic economists—even those such as Partha Dasgupta and David Pearce, who have dedicated their life's work to the environmental issue—have failed to prevent the ecological crisis from intensifying and diversifying. The response of greens has been to build their own economics and latterly to move towards including it as one strand of a more pluralist academic discourse.

3. Method or madness: ontology, epistemology and method in green economics

One of the few characteristics that green economists share with neoclassical economists is a fairly universal disdain for the study of methods. Neoclassicals would rather spend their time on theory, having long since reached an agreement that the positivist approach—usually relying on a regression model—is the most efficient way to allow the real world to make an appearance in their ivory towers. Green economists, in contrast, are so embedded in the natural and political worlds that they are also dismissive

of, or perhaps oblivious to, the importance of establishing the grounding of the knowledge they are creating. However, we can draw some inferences about the nature of reality, as perceived by green economists, from the choices they make about which aspects of the world they choose to study and how they choose to study them. In this section I attempt to establish the sorts of epistemological and ontological claims that green economists are implicitly making, and how these influence the way in which they study the economy and the kinds of policies they propose.

Tony Lawson alerts green economists' attention to the importance of establishing an ontology, since 'the nature of the material studied will always make a difference to how we can and cannot know it' and also states his view of the importance of 'the elaboration of as complete and encompassing as possible a conception of the nature and structure of phenomena of a relevant domain of reality as appears feasible' (Lawson, T., 2007, pp. 254–5). While the aim of finding such a tidy system of boundaries and methods is appealing, it may not be consistent with the complexity of life as we find it in nature or with the fundamental commitment to holism that greens demonstrate, not only in economics but across the disciplines. **The commitment to respond to nature in all its complexity and to respect nature as a system rather than to reduce it to a number of constituent parts to facilitate analysis sets green economics apart from neoclassical economics.** An example is the paper by Richard Lawson (Lawson, R. 2007) where he argues for the axioms of being constitutive of natural systems and hence intrinsic to a green approach to the economy.

Green economists universally eschew the use of a mathematical method, because to use such a method would require the imposition of a range of simplifying assumptions. This perfectly illustrates the conflict between this methodological approach and that of green economics, which is committed to retaining the commitment to complexity that is inherent in the discipline of ecology and in the natural world (Stock, 2009; Meadows, 2009). In the related field of **industrial ecology**, Allenby (2006) asserts that theorists are working with 'a set of complex and sometimes mutually exclusive ontologies' and that this presents problems for coherent debates, especially in forums such as journals and learned societies. I would argue that a similar position exists in the nascent discipline of green economics and would support Allenby's suggestion that **any attempt to impose a unified ontological frame would be misguided since 'any single ontological structure that can be explicated is just too simple to capture the complexity of the reality that industrial ecology explores' (Allenby, 2006, p. 37).**

In place of a simplified and clearly bounded area of knowledge that green economics might make its own, green economists seek their certainty through embedding their understanding in natural processes and systems. While we would be wise to pay heed to Lawson's warning of the importance of avoiding what he calls 'misplaced universalising', I would suggest that there is a powerful tendency amongst greens in various disciplines to **engage in a form of essentialism that foregrounds and exalts the 'natural'**. In the field of economic development this might best be demonstrated by permaculture, with its principles derived from close observation of nature and its commitment to work with nature in every field of life (Holmgren, 2002). We might liken this **reading of nature's way to an almost transcendental ontology**, where rather than human rationality and morality arising from the absolute goodness of God, the mystically incomprehensible complexity of the web of life is evidence of the power and authority of Nature. In this understanding, the role of the researcher or student is one of humble observation and interpretation rather than theorising.

Due to space constraints I can only begin to indicate the direction of travel that a developing epistemology of green economics might take and, as indicated earlier, the recent entry of green economics into the fields of academic study and teaching means that this has not been an explicit concern thus far. Given what was said in the previous section about the need to understand, explain and coexist with the world without diminishing its complexity, the question of *how* we might know is a complex one. I have found the work of Michael Carolan useful in drawing attention to the contribution that the philosophers A. N. Whitehead and Maurice Merleau-Ponty might have to offer. What they share is a tendency to favour embedded knowledge. In the case of Whitehead, Carolan identifies his critique of the role of Western philosophy in ‘erecting erroneous divisions—that now appear self-evident, objective, and real—between the perceiver and the perceived, which, in turn, has helped spawn other dichotomies, such as mind/body, self/other, and society/nature’ (Carolan, 2008, p. 53). The Cartesian dualism that stands in opposition to the holism that underpins green philosophy is one example of this distinction between the thinker (*cogito*) and the body within which the thinking brain resides (the subject of the *sum*). In Merleau-Ponty, Carolan finds a solution to this detachment, an identification of the body itself with consciousness and of the co-production of reality through an ongoing relationship between our embodied selves (what he refers to as the ‘incarnate cogito’: p. 64) and the world we are a part of. Merleau-Ponty himself developed his concept of ‘embodied subjectivity’ as a direct response to Cartesian dualism.

Embodied subjectivity seems to exactly describe the work of green economists such as Richard Douthwaite (1996), with his detailed study of small-scale, rural Irish economies, and of Hazel Henderson’s (2006) account of the limitation of the conventional model of an economy devoid of concern for non-market production and active engagement with the developing green economy. Perhaps more overtly, Mary Mellor’s work on embedding (2006) explicitly critiques the masculinist epistemology, with its implication that people can be independent of their physical selves and the physical world of which they are a part.

Drawing directly on the preceding discussion of epistemology we can ascertain that personal experience of nature has a particular weight in debates amongst green economists, in contrast to the disembodied data of the neoclassical economist. In contrast to Galileo’s view that ‘This grand book the universe . . . is written in the language of mathematics, and its characters are triangles, circles, and other geometric figures without which it is humanly impossible to understand a single word of it; without these, one wanders about in a dark labyrinth’ (quoted in Abram, 1996, p. 32), green economists would seek their truth rather from a direct observation of nature, by taking the permaculturist’s principle of ‘observe and interact’. The green economist would extend Whitehead’s critique of the conventional scientific method—‘Thus the certainties of Science are a delusion. They are hedged around with unexplored limitations’ (Whitehead, 1967, p. 154; quoted in Carolan, 2008, p. 61)—to the apparent certainties of the neoclassical economist and his regression results.

What guides the green economist is a quest for the production of a shared truth within a community of scholars, while at the same time respecting the wisdom of other species. This is an approach to scholarship that is at once liberating and humble. We cannot aim for total knowledge on the scale of a unified field theory; rather we should find methods that enable the acquisition, analysis and sharing of knowledge. Elsewhere (Cato and Hillier, 2010) I have provided an account of how this approach might inform

our fieldwork and I think it explains the choice by green economists to use their engagement in communities of practice as a source of knowledge (e.g. Douthwaite, 1996; Henderson, 2006) and, when not involved, to base their acquisition of knowledge in a relationship of equals rather than in one of researcher and researched.

Rather than an artificial objectivity, green economics welcomes a diversity of perspectives and is thus inherently pluralist. For example, Paul Ekins (2000), once the economics speaker for the UK Green Party, has adopted quantitative methods, while Jonathan Porritt, a former Chair of the Ecology Party, works in a more descriptive vein to share the insights of permaculture and industrial ecology with the business community. Rather than a neutral, politically uncommitted approach to study, green economists are unafraid to nail their political colours to the mast and to make their study one of political economy rather than economic science. Green economics is therefore perhaps more a form of engaged study than a conventional academic discipline. Its ideas are influencing and changing the world, and finding their way into higher-education curricula, but those originating and propagating these ideas are as likely to be found on allotments and as part of community groups as they are in universities.

4. Principles to guide a healthy relationship with nature

Section 2 explored why green economists feel there is the need for a significant paradigm shift in the way we interact with the planet, as the provider of all resources. In the limited space available I will draw attention to four of the central understandings that are shared by the majority of green economists, beginning with a principle that it has borrowed from ecological economics: that we must create a balanced relationship with the ecosystem on which we depend. To this first concept of *balance* are added, in subsequent sections, those of *equity*, *scale* and *diversity*, as the four central principles of a green approach to economics.

4.1 Ecological balance rather than economic growth

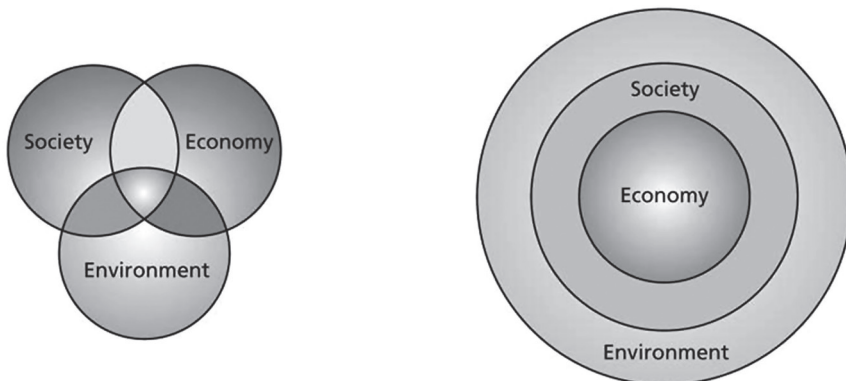
The lesson of ecology is that, as species of the planet, we are all connected in a web of life. Ecology is defined as ‘the scientific study of the interrelationships among organisms and between organisms, and between them and all aspects, living and non-living, of their environment’ (Allaby, 1998). Green economics shares with ecological economics the basic principle that we cannot satisfy our own desire for resources without considering the consequences of what we are doing for the rest of our ecosystem. Following logically from this, and taking into account what I argued in the earlier section about the primacy of nature in green thinking, a second principle for a green economist is the importance of adapting to the environment we find ourselves in, rather than trying to force the environment to adapt to us (Ekins, 1992; Porritt, 2005).²

Figure 1 illustrates the differing views of the relationship between economy, society and environment taken by neoclassical and green economists. From the perspective

² It might be interesting to address the argument that eco-Marxists, such as John Bellamy Foster, make regarding coevolution, i.e. that there has always been a dialectic between organisms, including human beings, and their environment, so that the dilemma between us adapting to the environment or the environment adapting to us may be a false one.

of a green economist, the formal economy is embedded within a system of social and economic structures: formal economic activity is only one aspect of economic activity (Robertson, 1989). This contrasts sharply with the neoclassical view of the predominance of markets and their laws as analogous to the physical laws of the universe, far beyond the influence of the human community. This is, of course, an extreme idealisation of the market economy and does not in fact represent how the market functions in Western societies, where laws governing such matters as minimum wages and environmental health make it clear that the economy system is embedded in social systems. A green economist would choose to make this more explicit, with the circle representing economic life wholly enclosed within the social, while the interacting social and economic systems of human society are illustrated as operating within the planetary sphere, which is itself a closed system. It is when we fail to recognise these complex interactions that the natural balance that exists in nature is disrupted and we create problems such as desertification or pathogenic pollution (Cato, 2009). This is in contrast to mainstream economics, which sees the environment as a possession of the economy, to be exploited at will.

It is this need to recognise planetary limits that has made the ending of economic growth a key tenet of green economics. The classic green critique of the concept of growth is *The Growth Illusion* (1992), where Douthwaite makes the point that, just as ecology suggests, excessive growth creates feedback systems that undermine the quality of life that we were seeking to enhance and is hence self-defeating. In a later paper he argues that there are different kinds of growth and lists conditions that economic activity should meet for it to be considered 'good growth'. These include economic activity that does not rely on increased use of energy or raw materials and transport, and has a neutral impact on waste production and pollution (Douthwaite, 1999). This discussion initiated by green economists has been taken up by policy makers as the 'well-being agenda', and continues to have an impact on environmental policy in reports such that published by the UK's Sustainable Development Commission recommending 'prosperity without growth' (Jackson, 2009).



The conventional economic view of the interaction between economy, society and environment

The green economics paradigm: economy operates within social relationships and the whole of society is embedded within the natural world

Fig. 1. *Contrasting views of the relationship between economy, society and environment: neoclassical economics and green economics.*

Ekins (2000) contextualises such concerns and distinguishes between four types of economic growth, as summarised in Table 2. We can see clearly from the table that, historically, the economy has relied heavily on Type 1 growth, demanding more from the planet to generate higher levels of consumption and return on investment. This is the kind of growth that is most developed within a capitalist, profit-based economy, where energy and materials (what is referred to in the table as ‘biophysical throughput’) are transformed into products that can be sold in the market. In the debate over climate change the emphasis has shifted to Type 2 growth, relying on ingenuity to overcome the negative consequences of increased production and consumption, which is sometimes referred to as ‘decoupling’, meaning our ability to generate the same amount or more material output, without using more energy or materials. This might be achieved by greater efficiency of materials use, more recycling or the generation of energy in non-polluting ways. This is the focus of theorists who emphasise the importance of making more with less, as in the work of Amory Lovins (1999/2008) and his colleagues at the Rocky Mountain Institute, and their European counterpart Ernst Ulrich von Weiszacker (2010) and his suggestion that we can increase efficiency 5-fold. Ekens is keen to point out the sceptical response from many to this suggestion that technology can guarantee business as usual, emphasising again the difficulty of circumventing the second law of thermodynamics. In this he is supported by recent work by Tim Jackson, which indicates the sort of efficiencies we are looking for, as illustrated in Figure 2 (discussed in Section 4.2).

With Type 3 growth we reach an area of greater interest to green economists: improving human well-being without imposing greater burdens on the planet. This can be the sort of process referred to in Jackson’s work as learning to ‘flourish within limits’ or come to appreciate ‘alternative hedonism’, as recommended by Kate Soper (2007). At a deeper level, it requires us to rethink what is meant by a good human life, question the consumer lifestyle and substitute stronger human relationships for more material products. While supportive in theory, some green economists might argue that such improvements in human welfare can sometimes be more apparent than real, since

Table 2. Ekens’s typology of economic growth and consequent environmental problems

Type of growth	Environmental problem	Green economists’ verdict
Growth of the economy’s biophysical throughput (Type 1)	Increases entropy manifest as growth in waste and pollution	Detrimental
Growth of production via greater energy and resource efficiency (Type 2)	Tends to rely on Type 1 growth or technological advance	Suspicion; criticism of ‘myth of decoupling’
Growth of economic welfare (Type 3)	Can be limited by negative environmental externalities and unequal distribution	Approval in theory; scepticism in practice
Environmental growth through increase in ecological capital (regeneration) (Type 4)	None, because nature manages to circumvent the second law of thermodynamics and decrease biospheric entropy	Approval, subject to genuine respect for natural cycles and biodiversity

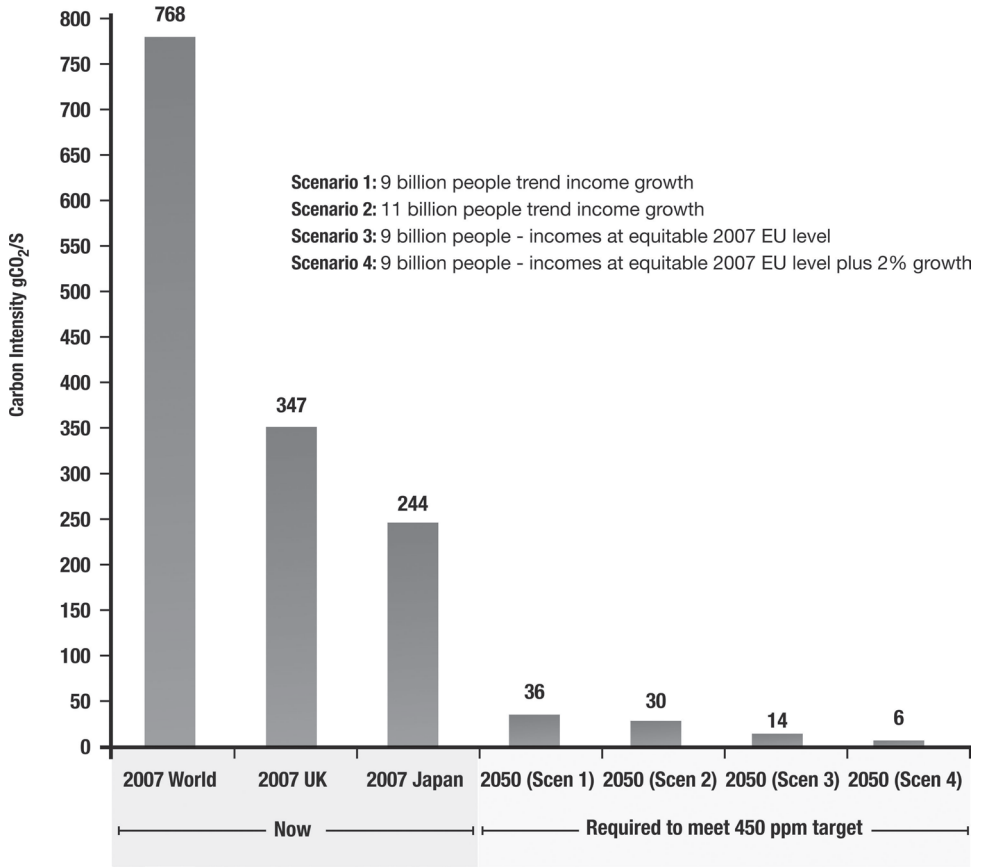


Fig. 2. The energy cost of the Western lifestyle.

many of the hidden consequences of such well-being only emerge distantly in time or space, and the category also takes no account of possible rebound effects.³

Type 4 growth is the type that green economists have no argument with, since it represents the natural ability of the planet to regenerate itself. Again, remembering the importance of living in balance with nature, such growth can be beneficial, e.g. the use of biomass to generate fuels, when the carbon dioxide produced in burning can be reabsorbed by the next round of tree growth. Such ideas are being developed further by theorists such as Herbert Girardet (2010), whose proposal for regenerative cities suggests that the urban settlement could not only become self-sustaining in food and energy terms and produce no waste, but could actually contribute positively by reinforcing natural systems such as the carbon and nitrogen cycles.

³ Rebound effects occur when an environmentally friendly technological improvement reduces prices and thereby increases consumption, as in the example of low-energy washing machines being used more frequently than less efficient models (see Herring and Sorrell, 2009).

4.2 Sharing rather than exploiting resources

Economics is conventionally considered to be a science of scarcity, while issues of equity are given less prominence. A green approach to the economy accords equal importance to these two factors and draws attention to their intrinsic connection. The recognition of the limitation of the earth's resources necessarily accentuates the issue of how those limited resources are shared, and hence there is an important link between the concentration of this wealth and the need for our economy to grow, since economic growth can help to ease conflict about allocation. While the pie is growing in size, politicians can assuage the demands of those with a smaller allocation by saying that they, too, are becoming wealthier year on year. Once we realise that our survival requires a limit to the size of the pie, the question of how much each citizen receives becomes considerably more urgent.

At the level of policy, concern has also been expressed by both green and environmental economists about the possible regressive consequences of a range of green taxes (see Turner *et al.*, 1996; Brannlund and Gren, 1999) as well as the regimes devised and tested before the introduction of such taxes to ensure that they would be fiscally advantageous to those in the lowest income groups (Dresner and Ekins, 2004). One study found that 'poor households already pay substantially more per unit of energy than rich households' and proposed a scheme that they claimed would end fuel poverty while simultaneously achieving carbon savings of 4m. tonnes of carbon over ten years and also enabling households to save nearly £20 billion (Dresner and Ekins, 2004). Other green policies, particularly the introduction of a citizens' income, would clearly operate to support the incomes of the poorest in society (Gamble and Prabhakar, 2005; Cato, 2009).

At a deeper level, the work of ecofeminists, such as Mellor (1997) and Plumwood, has accentuated the importance of a complete rethinking of economic structures as necessary to the protection of the planet from economic exploitation and has had a strong impact on the theoretical development of green economics. Plumwood writes that 'a real deep ecology must rethink private property' (2002, p. 217) and that 'Inequality, whether inside the nation or out of it, is a major sponsor of ecological irrationality and remoteness'. The situation is complicated by the fact that a green lifestyle, including such items as hybrid vehicles and organic food, is significantly more expensive than a conventional lifestyle. For many greens their practical response to the environmental crisis that they recognise around them has been to buy a green lifestyle off the shelf, what Plumwood (2002) refers to as 'deep-pocket ecology', because it is only available to those with the income to support this choice. Those with larger bank balances can also insulate themselves from the worst effects of 'a range of environmental ills': 'some considerable degree of redistribution and remoteness from consequences is possible along lines of social privilege' (Plumwood, 2002, p. 85; Szasz, 2007).

The corollary of the argument that a sustainable lifestyle might require a high level of income is the recognition that those who live more frugal lives are putting considerably less pressure on the earth's environmental systems. Jackson (2009) has provided a way of measuring this based on assessing the carbon cost of our current production systems. His results, reproduced in Figure 2, indicate that we would need to increase our efficiency some 128-fold if we are to provide Western-level incomes, with a fairly low growth trend, for the 9 billion people who are projected to be on the earth by 2050. The graphic shows the required carbon intensity of production under various

scenarios. At present it takes 768 grams of CO₂ to buy a dollar of output—although only 347 grams in the UK. If we were to achieve global equity, we would need to be able to buy a dollar of output with just 14 grams of CO₂.

This exposes the myth of decoupling (the suggestion that we can have economic growth without producing more CO₂) and provides support for the thread in green economic thinking that demands an unpacking of the concept of a ‘good lifestyle’. Cato (2004B) links the definition of relative poverty and the harmful cycle of economic growth, suggesting that advertising is used to create a range of new ‘needs’ that the economy must then expand to fulfil, thus depriving us of the ability to set our own standard as to what our requirements are. Although this may increase our material wherewithal, it adds to the extent of our unmet needs, both individually and as a society, and increases dissatisfaction. We are more dissatisfied than our primitive ancestors, whose societies have been described as the original affluent societies and whose approach to production and exchange is described by Sahlins in terms of ‘stone age economics’ and a ‘Zen road to affluence’ according to which ‘human material wants are finite and few, and technical means unchanging but on the whole adequate. Adopting the Zen strategy, a people can enjoy an unparalleled material plenty—with a low standard of living’ (Sahlins, 1972, p. 2). These ideas have recently been taken into the policy agenda through the consideration of finding a way towards ‘prosperity without growth’ and learning the art of ‘flourishing within limits’ (Jackson, 2009).

4.3 *Size matters*

The concern with scale is evident in green economics, whose most famous adage is probably ‘small is beautiful’ (Schumacher, 1973). However, this can be somewhat misleading, implying that green economists have a slavish adherence to smaller units, when **really the preference is for appropriate scale**, i.e. organising economic activity at the level that is best suited to serve the needs of producers, consumers and the environment. While larger scale may generate higher profits, this is only one vision of efficiency, and from a green perspective this microefficiency generates macro-level inefficiencies, such as pollution and excessive use of energy and resources, which may be ‘external’ to the firm but are still deleterious to people and the environment. An example might be the global food system, whose lengthy supply chains enable production in economies where land and labour are cheap, but generates unnecessary food miles with the associated energy and pollution costs.

According to Schumacher, ‘For every activity there is a certain appropriate scale, and the more active and intimate the activity, the smaller the number of people that can take part’ (Schumacher, 1973, p. 64). Green economists have taken the ideas of Schumacher forward to argue that while a market economy may generate higher levels of output, it will not operate at the appropriate scale to exist in balance with its environment. This understanding is diametrically opposed to the neoclassical concept of ‘economies of scale’, which according to green political economists must be subordinated to considerations of environmental impact: ‘Economies of scale may increase the scale of the economy beyond that which the environment can sustainably support’ (Barry, 1999).

The concern with scale has developed into a call for localisation of the economy, as in the work of Colin Hines (2000). Within the green paradigm, the priority for economic policy is the strengthening of the local economy for purposes of improving the

security of supply, to reduce the environmental impact of trade-related transport and to reinforce the communities for which economic life provides a foundation. Woodin and Lucas sum this up as follows:

Economic localization is the antithesis to economic globalization. This involves a better-your-neighbour supportive internationalism where the flow of ideas, technologies, information, culture, money and goods has, as its end goal, the rebuilding of truly sustainable national and local economies worldwide. Its emphasis is not on competition for the cheapest, but on cooperation for the best. (Woodin and Lucas, 2004, pp. 68–9)

Building on the work of Hines (2000), Woodin and Lucas (2004) propose four building blocks of economic localisation: localising money and constraining the power of global financial capital; controlling the TNCs (transnational corporations) through policies such as ‘site here to sell here’ and import and export duties; replacing the WTO with a General Agreement on Sustainable Trade; and backing this up with a system of environmental taxation to reinternalise the externalities caused by global trade. More radical ideas along similar lines include the concept of ‘trade subsidiarity’ (Cato, 2009), meaning that goods are produced and supplied from as close to the consumer as reasonably possible, and bioregionalism, where resources are drawn from a local ecosystem defined by the geographical environment (Sale, 2000). Curtis describes such a system of inter-related but independent local economies as ‘ecolocalism’ and argues that it includes: ‘local currency systems, food co-ops, micro-enterprise, farmers’ markets, permaculture, community supported agriculture (CSA) farms, car sharing schemes, barter systems, co-housing and eco-villages, mutual aid, home-based production, community corporations and banks, and localist business alliances’ (Curtis, 2003, p. 83).

4.4 Widening the circle

I began this discussion of green economics by describing it as emerging from praxis and I should extend this to make clear that this grounded action is taking place in communities across the globe. This has led to a range of different voices entering the debate about how economic resources should be shared and how economic systems should be designed. It is this commitment to a pluralism of approach and to an inclusive attitude to all those who would enter into this debate that I discuss under the heading ‘widening the circle’. The narrow circle of economic debate in the twentieth century is illustrated by the photographs available online of the participants in the debates at Bretton Woods. Here, we see the white men from wealthy Western economies who were dominant in economic discussions at the time. In contrast, green economics welcomes contributions from women (who have traditionally been such a minority in the economics profession)⁴ and from theorists in the South.

Green economists have borrowed a number of ideas from the ecofeminists, some of whom might now identify themselves as green economists. An example is Ariel Salleh (Salleh, 2009), who discusses the link between patriarchal relations of capitalism and the ecological crisis. According to ecofeminists, the nature of women’s work enables them to be able to make a valuable contribution to the re-embedding of our economy within the environment. In general, women are less liable to suffer what Plumwood

⁴ Danny Dorling (2010) draws attention to the extreme position of economics as a discipline in terms of the gender bias of its award of its highest prize.

(2002) calls ‘remoteness’ and which she considers the conceptual failing underpinning the destructive economy.

According to Mellor (2006):

What is important about women’s work and relevant to green economics is that it is embodied and embedded. Women’s work is embodied because it is concerned with the human body and its basic needs. Broadly it is the maintenance and sustenance of the human body through the cycle of the day and the cycle of life (birth to death), in sickness and in health. It is mainly caring work: child care, sick care, aged care, animal care, community care (volunteering, relationship building), family care (listening, cuddling, sexual nurturing, esteem building). Women’s work is embedded because it is, of necessity, local and communal, centred around the home. In subsistence economies it is embedded in the local ecosystem. (Mellor, 2006, pp. 141–2)

Another source of insight that is often excluded from mainstream economics discussions is that of economists and development workers based in the countries of the South. Economists such as Max-Neef (2011) have long argued for a human-scale economics that can be considered a part of the green economics tradition. This contrasts strongly with the export-led growth model that has been imposed on poorer countries by the IMF and World Bank (Nadal, 2011). Khor, a prominent majority-world analyst, offers an explanation for the failing confidence in this model:

the lack of tangible benefits to most developing countries from opening their economies . . . the economic losses and social dislocation that are being caused to many developing countries by rapid financial and trade liberalization; the growing inequalities of wealth and opportunities arising from globalization; and the perception that environmental, social and cultural problems have been made worse by the workings of the global free-market economy. (Khor, 2001, p. 1)

As a consequence of its commitment to social equity green economics is required to recognise the rights of people living in the global South to an equal share in the planet’s resources. In addition their approach to economics, especially that from indigenous societies that have managed to flourish in balance with their environments for thousands of years, has much to recommend it and much we may learn from (Thekaekara, 2004). A Native American of the Xikano Xiximeka tribe from Arizona describes indigenous people’s understanding of land as follows:

All land is sacred. It is their bible. Indigenous people do not see the land as a commodity which be sold or bought. They do not see themselves as possessors but as guardians of the land. A fundamental difference between the indigenous concept of land and the western idea is that indigenous peoples belong to the land rather than the land belonging to them. (Zapata and Schielman, 1999, p. 236)

This sort of perspective on land, resources and other species guarantees them a better protection than the ‘exploitation of resources’ that neoclassical economists theorise without a pang of responsibility, or worse still their commodification via an extension of property rights that comes with the label ‘ecosystem services’ (Sullivan, 2008).

Beyond human concerns, green economics calls for widening the circle further, to include future generations of human beings and the other species that also inhabit the earth. Much as women have been liberated and allowed to enjoy full rights, many now argue that the same should be true of animals (Singer, 1981). It was the Brundtland Commission (United Nations World Commission on Environment and Development (UNWCED), 1987) that first brought the issue of intergenerational equity to public attention with its definition of sustainability that recognised the need to balance our needs with those of future generations. This has been argued for strongly by environmental (see Pearce *et al.*, 1989) as well as green economists and is clearly inherent in green economics.

5. Conclusion

Any attempt to capture the breadth of a new subdiscipline in the space of an academic paper is sure to fall short of its ambitious aim. It is also inevitable that an attempt to characterise any subfield of economics will create an artificial narrative of unity when in fact the inhabitants of the field can be discussed in terms of their differences as well as their similarities. With a field as new as 'green economics', its first claim must be one to existence. In this paper I have made the case for the independent existence of green economics. Although it shares its motivation and many basic ideas (especially that of planetary limits and the importance of the entropy law) with its cousin ecological economics, as I hope has become clear, it has a distinct origin and motivation.

As argued throughout the paper, green economics shares much with the subdiscipline of ecological economics, particularly the conviction that mainstream economics approaches are not protecting the environment and that a sustainable economy needs to abandon the inherent commitment to growth. However, there are some distinct differences. First, that all green economists are committed to major structural and social changes in the way economies are organised. In some cases this expresses itself in a commitment to cooperative organisational forms, but in all cases it demands the asking of deep questions about how goods and services are shared in a human society living within ecological limits. While this is a concern for many ecological economists, it does not find the central place that it does for green economists. Second, green economics is a subdiscipline developed in praxis and only finding its way into the academy in response to the need by activists and policy makers to learn more about its approach in order to put it into practice themselves. This also distinguishes it from ecological economics, which has developed in an academic context. Third, green economics differs in its method, with all green economists questioning the extent to which mathematical analysis can be useful in framing debate about what is, inherently, an area of social and political concern, and many rejecting empirical analysis altogether in favour of discussion arising from intuitive and personal insight.

I have identified four central issues that characterise a green approach to the economy. Its pluralism is inherent, and is evidenced by the repeated call for a wider range of perspectives on economic problems than those that currently dominate academic and policy discussions. This leads naturally to a commitment to global equity and to giving equal importance to the needs of the majority world to decisions about the allocation of global resources. Equity is also a concern at the domestic level, a concern that arises necessarily from the closing of the planetary frontier. Schumacher's catchphrase 'small is beautiful' is influential, but has been developed into a call for strengthened local economies and an opposition to the globalisation and displacement that have typified economic 'progress' during the past century. And, finally, the call for a steady-state economy and the replacement of the growth dynamic that is central to the capitalist economy is a fundamental tenet of green economics.

More than 40 years ago, Kenneth Boulding wrote that 'We are now in the middle of a long process of transition in the nature of the image which man has of himself and his environment' (Boulding, 1966, p. 1). Green economists seek to map that transition in the sphere of provisioning using landmarks such as the absolute requirement to live in harmony with our ecosystem and achieve a balance between the needs of rich people in the West and those who live in the South, who have yet to be born and who are members of different species.

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