Global Justice and the Distribution of Natural Resources

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What should a political theorist say about the justice of the global distribution of natural resources? One issue is whether principles of distributive justice should be applied globally, and this has been debated between nationalists and cosmopolitans. A second, though, is how the category of ‘natural resources’ should be conceived in relation to other distributable goods. This has not adequately been addressed even by theorists of global justice who expressly focus on natural resources. In particular, neither Charles Beitz’s argument for a natural resources redistribution principle nor David Miller’s argument against works with a satisfactory account of how the physical distribution of resources relates to the distribution of their economic value. A more satisfactory account can be developed from the perspective of ecological economics as inspired by Nicholas Georgescu-Roegen. From this perspective, global inequalities in the command of natural resources can be viewed with the clarity that a normative theory of their justice requires. If natural resources are re-conceptualised in terms of ‘ecological space’, Beitz’s argument can be recast and vindicated. The re-conceptualisation is necessary to overcome the problems with the original version, as is shown by reference to the existing alternative formulations of Hillel Steiner and Thomas Pogge.

What should a political theorist have to say about the justice of the global distribution of natural resources? Any answer to this particular question will depend in part on what answer is assumed to hold for each of two more general questions. One is whether principles of distributive justice can or should be applied globally at all; the other is how the category of ‘natural resources’ is conceived in relation to other goods that may appropriately be distributed according to principles of justice. The former question has been quite widely discussed by political theorists, particularly as a debate between ‘cosmopolitans’ and ‘nationalists’ (see e.g. Caney, 2001; see also Caney, 2002; Miller, 2002), but the latter question has received relatively little attention. The priority given to the former question in the literature might be thought to correspond to a logical priority, for unless it can be shown, as cosmopolitans seek to show against nationalists, that any goods at all should be subject to principles of distributive justice globally, then the question of the just distribution of natural resources globally would appear not even to arise. However, if one does not simply assume that natural resources should be conceived as a sub-set of distributable goods in some more generic sense, then the logic of that priority may not apply. Certainly the question of how natural resources are to be understood in relation to other distributable goods can be addressed without making any initial assumptions about the proper scope of distributive justice. I shall in fact show that addressing it provides a route into the more general global justice
debate, illuminates it and highlights some critical issues that cut across the cosmopolitan/nationalist opposition.

I shall begin by briefly examining two contrasting answers among the few that have been offered to the opening question of this article. These have been provided by Charles Beitz and David Miller. The contrast between Beitz and Miller as representatives of cosmopolitanism and nationalism respectively is well known, but the issue between them here does not depend primarily on that opposition, since Beitz’s argument in favour of a natural resource redistribution principle is advanced from nationalist assumptions. In the first section I show that argument to be unpersuasive because of problems arising from an inadequate conceptualisation of natural resources and their relationship to distributable economic goods. In the second section I show that while Miller is alert to some of the difficulties that are not fully recognised by Beitz, his own counter-argument also rests on a conception of natural resources which can be criticised as importantly incomplete.

Thus, the critical question that neither theorist satisfactorily addresses is how the physical distribution of resources relates to the distribution of their economic value. In the third section I suggest that a more satisfactory answer to this question can be provided from the perspective of ecological economics as inspired by the work of Nicholas Georgescu-Roegen. From this perspective, the utilisation of resources represented by environmental harms is included in the reckoning. When the command of natural resources is thus conceived in the more comprehensive terms of utilisation of ‘ecological space’, a positive correlation is revealed between economic and resource inequalities. This allows a clearer view of the issues to which a normative theory of justice can then be applied. In particular, as I show in the fourth section, it focuses an important difference between justifying inequalities generated by efficiency gains from an equal share of a single resource base and justifying inequalities in the share of the resource base itself. Once natural resources are conceptualised in this way, Beitz’s argument can be recast so that its normative animus is vindicated. The fifth section then highlights the necessary role of the concept of ecological space for this recasting by showing that existing alternative formulations, notably those of Hillel Steiner or Thomas Pogge, do not resolve all the problems with Beitz’s original approach.

**Beitz’s Global Resource Redistribution Principle**

Charles Beitz has developed several arguments in support of the view that distributive justice should have global applicability. For the most part, these proceed from cosmopolitan premises, but the argument he develops with specific reference to natural resources is advanced on the basis of a premise he concedes to the opposition, namely, that it is with reference to nations rather than individuals that principles of global justice should be developed. His point
of departure is John Rawls’ account of how representatives of states, in a hypothetrical international original position behind a veil of ignorance, would arrive at principles to regulate states’ conduct with one another. The principles Rawls envisages are familiar principles of self-determination, non-intervention, just war and so on (Rawls, 1972, p. 378). They do not include, crucially, principles of distributive justice (Rawls, 1999, pp. 113–20). For Rawls, distributive justice can only apply where there is an ongoing scheme of social cooperation such as exists within a state but not between states.

Beitz, however, believes the distinctiveness of natural resources is such as to breach Rawls’ consistently maintained line that principles of distributive justice do not apply as between nations. He argues that parties to the international original position would have a distinct interest in guarding against resource inequalities, for they:

> would know that resources are unevenly distributed with respect to population, that adequate access to resources is a prerequisite for successful operation of (domestic) cooperative schemes, and that resource supplies are scarce. ... Not knowing the resource endowments of their own societies, the parties would agree on a resource redistribution principle which would give each national society a fair chance to develop just political institutions and an economy capable of satisfying its members’ basic needs (Beitz, 1979, p. 292).

However, I shall highlight three reasons why they ought not and would not agree to this principle.

First, there is reason to question Beitz’s contention that a redistribution of natural resources is morally permissible. He contends it is because the actual distribution of natural resources is neither just nor unjust, but simply a matter of fact. The natural endowments of territories are arbitrary from a moral point of view, ‘in the sense that no one has a natural prima facie claim to the resources that happen to be under his feet’ (Beitz, 1979, p. 292). Thus, no claim attaches to natural resources which would block a moral claim for transfer of some from richer to poorer nations. Yet, this argument disregards an important feature of natural resources that lie ‘under one’s feet’: they cannot themselves be transferred at all unless either they are brought out from under one’s feet and made transportable or else the transferee takes control of the territory in which they lie. Once either of these preconditions for transfer is met, circumstances will have changed in ways which can be expected to render the pre-transfer distribution either more just or less just, and hence no longer morally neutral.

Beitz’s characterisation of the natural distribution of resources as morally arbitrary actually equivocates between three distinct claims. Two of these, with certain caveats, are consistent with one another, but they are disjunctive with the third. The first is that the distribution of terrestrial minerals and biota is a simple fact and neither just nor unjust. The second is that the fact that
different populations inhabit different territories with different natural endowments is not – bracketing out historical questions about how they came to occupy their territories and claim sovereignty over them – one that need be construed as a question of justice rather than one merely of relative fortunes. In both cases the natural distribution of resources can be considered morally arbitrary because it refers, in Beitz’s words, to the naturally occurring phenomena ‘under one’s feet’. However, the natural phenomena that lie under one’s feet cannot, without significant qualifications, be considered resources as such at all. There are very few resources that are available simply in virtue of lying where they do as a result of natural evolution. More generally, the mineral and biotic constituents of the planet only become resources, as distinct from pure natural phenomena, through processes of prospecting and appropriation. It is therefore significant that when Beitz speaks of redistributive claims he refers to ‘available resources’. It is with reference to these that he makes the third claim, that they may be justly redistributed. Indeed, it is only available resources, rather than what simply ‘lies under one’s feet’, which can be redistributed; yet, the argument for the moral permissibility of redistribution applies only to resources ‘under one’s feet’ and not to available resources. Or so I shall now show.

Second, for the distribution of available resources to be morally neutral, there must be no pre-existing claim of justice to them. Yet, if making them available involves either getting them into a transferable state or else allowing agents of another nation to take control of their territorial location, one can envisage claims of justice on the part of the host population being advanced as at least prima facie reasons for resistance. There may, thus, after all be a prima facie moral claim that can underpin the sovereign right of a nation to its territorial resources. Beitz’s denial of the fact that a population occupies a territory endowed with a particular bundle of resources confers on that population any special claim of justice to use or enjoy those particular resources rests on an equivocation in his conceptualisation of natural resources. The applicability of the distinction between resources as they naturally occur and resources as are available for human use or valorisation may in practice not always be clear cut, but conceptually, and especially in relation to Beitz’s argument, it is of significance. Available resources are – almost invariably – available in virtue of prior labour and the application of science and technology in the broadest sense, which embodies historical labour. Such processes can be understood to attach a claim to the available resources on behalf of the people who engaged in them: those who have ‘mixed their labour with’, or ‘applied human intentionality to’, a particular parcel of the earth’s bounty have one justification more than everyone else for a claim to the resources they have thereby made available. Prior to engaging in the requisite labour no-one can have any special claim to anything, perhaps, as Beitz says, but in those circumstances, if ethical considerations can apply at all, then a reasonable one is that everyone is entitled to try to make the most of what they find round about them without interference from others. A crucial part of the point of political association is to provide security
for the members of the polity. Before resources are exploited or prospected there can be no way of knowing whether any community might have a larger global share than others, and at this stage there can be no justification for any action on the premise of the justice of redistribution. There can, however, be a powerful normative premise that each community leaves each other community in peace to explore, develop and exploit its resources as best it can, particularly as doing so can require historically protracted development of appropriate techniques.

Third, the arguments thus far show that a redistribution of natural resources is not so evidently or straightforwardly permissible as Beitz supposes, since it has to stand up to opposing claims of justice. Nevertheless, this does not rule out the possibility that in a contest between the two opposing claims the redistributive principle might prevail morally. The rationale for Beitz’s redistributive principle is that it would ‘give each national society a fair chance to develop just political institutions and an economy capable of satisfying its members’ basic needs’; so if some nations have less than enough and others have more than enough to meet these ends, a general case for redistribution could reasonably be agreed behind an ‘international veil of ignorance’. But can or should the redistribution be of natural resources? Without denying a case for redistributing economic resources on the general grounds Beitz gives, it can nevertheless be argued that applying a natural resource redistribution principle would not necessarily improve the economic position of the worst off. Beitz takes the parties to the international original position to suppose that societies established in areas rich in resources ‘can be expected to exploit their natural riches and to prosper’ (Beitz, 1979, p. 289). Yet, contrary empirical evidence shows that some resource-rich nations are anything but prosperous whereas some prosperous nations have a relatively meagre natural resource base (Barbier, 2003). The natural resource endowment of a nation does not bear any particular correlation to either its well-orderedness or its economic well-being. The capacity to valorise resources is the key determinant of wealth; the original provenance of the resources is a matter of relative indifference.

So, while Beitz is justified in assuming that economic wealth depends on – and represents – a command of natural resources, he is wrong to assume that their natural occurrence on a state’s territory is either a necessary or a sufficient condition of that state enjoying economic prosperity. The parties to the international original position should know this and therefore not endorse a principle of natural resource redistribution that would apply independently of economic inequalities.

David Miller on Natural Resources and Distributive Justice

David Miller has responded critically to global redistributive principles in several places, but here I focus on his specific criticisms of a natural resource
redistribution principle. An initial critical question he poses is: ‘what would it mean for a distribution of resources among a number of people to be an equal distribution?’ (Miller, 1999, p. 191). He indicates several difficulties. For one, ‘natural resources are very heterogeneous in nature, and we should expect different people and different societies to value them differently’ (Miller, 1999, pp. 191–2). Moreover, not only are there cultural dimensions to the valuation of any resource, there are cultural limitations even to what features of the natural world are allowed to count as resources at all. Furthermore,

the value of a natural resource depends upon the technical skills and knowledge of the people who intend to use it. Uranium-bearing rock had no value until very recently: no one knew how to extract the uranium, and no one would have been able to think of a use for it even if they had (Miller, 1999, p. 193).

Because the value of resources remains indeterminate, we cannot say whether the citizens of this or that country have more, or less, than their equal share of natural resources (Miller, 1999, p. 193).

If the value of natural resources is so contingent – and I do not dispute this – then one might think the aim of attempting to redistribute natural resources in proportion to their value ought simply to be abandoned. Interestingly, though, Miller brackets out this problem in order to advance an objection of normative principle (ostensibly) against that aim itself. Miller argues that even supposing resource equality could be coherently defined, the attempt to maintain it by means of a redistribution principle would be self-defeating. He invites us to imagine, as a thought experiment, that the requisite redistribution had been effected for two neighbouring countries with an equal per capita share of natural resources.

The citizens of one country, call it Affluenza, share an ethos of consumerism, and their democratically elected government allows oil deposits to be used up to make petrol for private cars, permits the cutting down of forests for timber and paper, and so forth. Next door in Ecologia, by contrast, there is a strict policy of sustainable development, with a heavy carbon tax on the use of fuel, higher prices for wood products to cover the costs of replanting trees, etc. As will be immediately apparent, if we look at natural resource levels one generation into the future, Ecologia will turn out to have a higher per capita share than Affluenza (Miller, 1999, p. 194).

If the principle of equality is to be maintained over time, then resources will have to be transferred from Ecologia to Affluenza, says Miller, and this would be to institute the perverse incentive to be profligate in one’s use of resources in order to be entitled to more as a reward. The consequences of pursuing such a policy reveal its irrationality: ‘if a global equalisation policy was applied in a world of many states, any one state that tried to conserve per capita resources ... would find that it lost almost everything it had saved – so no state would
make the attempt’ (Miller, 1999, p. 194). Moreover, it would be unfair to citizens of ecologically responsible states, who have made sacrifices in order to effect their policies, to have their achievements undermined by having to transfer resources to people who have made no such sacrifices. Thus, Miller claims that ‘global equality of resources, even if it can be coherently defined in the abstract, must be defeated over time by the different policies followed by autonomous political communities, which give rise to fair inequalities in per capita shares of natural resources’ (Miller, 1999, p. 195).

In response to this claim there are three critical observations I shall make: (1) there is an internal weakness in its initial conditional premise; (2) the argument advanced does not engage with the real concerns of resource egalitarians; and (3) even as a hypothetical argument, it misses its purported target. First, a paradoxical feature of Miller’s argument is that it depends on an assumption he does not actually think is coherent – that global equality of resources can be defined. Nonetheless, as paradoxes often are, this one is perhaps only apparent. What Miller believes cannot be coherently defined is the value of natural resources in terms of which equality might be pursued. The argument he actually advances makes no reference to their value. In the quoted passage, the shares Miller talks about are shares of biophysical resources themselves, not of their value. Indeed, Affluenza, as Miller hints by so naming it, may well have amassed greater income and wealth – and thus economic value – than Ecologia over the period referred to, and so it cannot be in any straightforward way the value of resources that has diminished for Affluenza. What the argument assumes is that the biophysical stock of unvalorised resources attributed to Affluenza has diminished whereas that attributed to Ecologia has been conserved. That this cannot be the whole story, and that some account of the relation between economic value and physical resources needs to be offered, is a matter to which we shall have to return. For now, it suffices to note the clarification of what Miller’s argument is assuming equality of natural resources to mean. And thus, what its conclusion holds, namely, that the diminishing of Affluenza’s stock does not represent an injustice and that there can therefore be justified inequalities in natural resource holdings.

Second, resource egalitarians have little reason to dispute this particular conclusion since it does not really have purchase on any claim they would wish to make. Miller’s thought experiment illustrates one particular way in which a fair inequality in per capita shares of natural resources might arise, but this would only be troubling to the egalitarian if the conception and criteria of inequality invoked represented the contrary of the conception of equality to which resource egalitarians are committed. But, it is no part of the egalitarian cause to seek redistributive measures favouring states that fit the description of Affluenza. The purpose of redistribution for egalitarians is to rectify damaging inequalities: people’s life chances depend on access to resources in so far as they
can draw benefit from those resources; and in the real world, people in precisely the states with the features ascribed to Affluenza have drawn ample benefit. It is not self-evident why the hypothetical circumstances are supposed to yield a case for redistribution of natural resources: if Affluenza has been profligate in its use of natural resources why should it not be subject to discipline, rather than to the receipt of further natural resources with which to be profligate?

Part of the answer must have to do with how natural resources are conceived. The logic of Miller’s argument depends on taking into consideration no factor other than the stock of unexploited resources possessed by a nation: it disregards not only the economic benefits that a nation may have drawn from exploitation of its resources, but also the power represented by economic gains to command shares of others’ natural resources. It disregards, too, the fact that resources are embedded in the products which the affluent dispose of and also in the by-products. I shall elaborate on these points later.

Miller’s thought experiment thus does not capture the relevant features of resource inequalities in the real world which are of concern to egalitarians. That concern is rather directed to the plight of those nations which they would see as victims of the predations of the Affluenzas of the world. For, in the real world, affluent nations often deplete not only their own territorial resources, but also those of others. Such circumstances are not modelled in Miller’s hypothetical scenario.

Third, even as a hypothetical argument, Miller’s does not hit the target it purports to. The argument presupposes an initially equal distribution of resources. Yet, even supposing his argument against redistribution holds after equality has once been achieved, it cannot – without more – be invoked pre-emptively against the aim of achieving equality in the first place. To say that an initial situation of equality is ‘bound to undo itself’ is not to say that the aim of striving to achieve one is unjust. That, after all, is the avowed aim of resource egalitarians, and in the event it were achieved, then the ways in which it might undo itself could quite conceivably be acceptable to them. In fact, if we follow Miller’s lead into the realm of the speculative, we could suggest that if the nations of the world were to so discipline themselves as to achieve a situation of equality they would already have so transformed their motivations and behaviour as to have lost the drive to behave like Affluenza.

So, the argument developed around the Affluenza/Ecologia thought experiment does not succeed in showing that existing global inequalities are justified or that redistributive measures to reduce them would be self-defeating. It remains now to clarify what the relation is between natural resources and economic value, why the current global distribution can be considered unjust and what justice requires by way of redistribution.
The Relationship between Natural Resources and their Economic Value

It has been shown how both Beitz and Miller work with unexamined assumptions about natural resources and the relation they have to economic value. In this section I show how natural resources and economic value do correlate positively at the scale that matters for considerations of global justice if natural resources are conceptualised in terms of ‘ecological space’. I argue that the correlation is sufficiently determinate to sustain the proposition that if redistribution is warranted on the basis of a presumption in favour of an equal per capita entitlement to ecological space, then redistribution in economic form is just.

If we think at a high enough level of generality – one at which arguments about global justice have purchase – certain propositions may ceteris paribus be affirmed:

(a) different resources have different uses, and the value of a resource has some relation to the value attached to its use;
(b) the value of a resource also depends on the relationship between supply and demand;
(c) as resources are transformed through the application of technology their value increases; technology can increase the range of uses for any given resource;
(d) physical resources are embodied in the products and by-products of applied technology: their form/configuration is altered, their constituent elements do not disappear or cease to exist;
(e) any accounting for shares of natural resources should (following from (d)) include the total resource appropriation as included in the products and by-products, rather than consider the resource to have disappeared;
(f) natural resources include environmental services and energy, so these have to be included in the accounting; this includes material order and negative entropy;
(g) (following from (f)) any adverse impact on resources not directly embodied in the product must also be included in the accounting.

In support of these propositions I offer the following remarks. If (a) were not true then there would be no rationality at all in economic behaviour considered in the aggregate; (b) is a standard proposition of economic theory; (c) is empirically obvious as well as necessary to the rationality of economic behaviour; (d) is a matter of natural scientific fact, grounded in conservation of matter and the first law of thermodynamics, whether or not the fact figures as a relevant one in conventional economic accounts. So, (a) through (c) are uncontroversial observations from the standpoint of macroeconomics; (d) is uncontroversial from the standpoint of physical science.
Propositions (e) through (g), however, have a normative character. They depend, first, on taking proposition (d) as having relevance to economics, and thus also to a normative theory of justice in so far as this is concerned with the distribution of economic goods. The proposition is not uncontroversial for those disciplines, however (and we saw that Miller disregarded it in reaching his conclusion that Affluenza’s share of resources was diminished by transforming their configuration). So, one question is whether there can be any justification for disregarding the fact represented by this proposition, (d), and thus for denying (e). Propositions (f) and (g) represent a necessary further elaboration and expansion of (d) and (e). I confess that I can conceive of no good reason for denying (d), or therefore (e), and so I have to leave the onus on anyone else who does to bring it forward. Meanwhile, I shall assume they hold.

In granting these propositions we necessarily take a more comprehensive biophysical view of the global economy than that presupposed by Miller (and other mainstream liberal economists and political theorists). In principle, it is possible using such an expanded account to identify more adequately the respective shares of resources actually commanded by different agents – whether individuals, firms or polities. This kind of account would be based on some key insights of the ecological economist Nicholas Georgescu-Roegen. Georgescu-Roegen viewed the economic process in terms of the throughput of energy and matter which enter as ‘resources’ and leave as a ‘product’ plus ‘waste’. Energy, as a resource input, is characterised by its low entropy. Georgescu-Roegen indicates how the difference between low and high entropy energy is perceived by humans in their productive activities: ‘Energy exists in two qualitative states, available energy, over which man has almost complete command, and unavailable or bound energy, which man cannot possibly use’ (Georgescu-Roegen, 1976, p. 54, emphases in original). He illustrates this difference:

When a piece of coal is burned, its chemical energy is neither decreased nor increased. But the initial free energy has become so dissipated in the form of heat, smoke, and ashes that man can no longer use it. It has been degraded into bound energy (Georgescu-Roegen, 1976, p. 54).

Productive processes tend to increase the entropic processes that are anyway occurring in their environment according to the second law of thermodynamics. Configurations of matter can also be more or less available for human productive use, and their transformations in processes of industrial production are analogous to the increase of entropic energy. Thus, Baumgärtner and de Swaans Aron refer to the occurrence of a by-product alongside the desired product. This is simply conservation of mass as per the first law of thermodynamics.

If, for instance, pure iron is produced from iron ore with a carbon fuel, the desired product, which is pure iron, does not contain any carbon. Yet, the carbon material from the fuel has to go somewhere. Hence, there has to be a joint product containing the carbon (Baumgärtner and de Swaan Arons, 2003, p. 116).
What when viewed from an economic perspective is a system of production, is, when viewed from a biophysical perspective, a system of dissipation of natural resources.

The environmental impacts of productive processes should not be dissociated from broader issues concerning the effective command of natural resources. Conceptually it would be artificial, and practically it would be inappropriate, to consider ‘environmental bads’ and ‘environmental goods’ as entirely separate sets of phenomena. The idea of ecological space has been gaining currency in recent years because it captures how all human interactions with the natural world – our use of resources and our environmental impacts – occur within a single biophysical reality. Systematic attempts to account for the biophysical basis and impacts of human economic activity have developed converging methodologies to determine ecological space usage. These calculate the total amount of biologically productive land and water area required to produce the resources consumed and to assimilate the wastes generated using prevailing technology. The use or ‘occupation’ of an amount of ecological space is referred to as an ‘ecological footprint’ (Wackernagel and Rees, 1996). Ecological footprint accounts express in ‘global hectares’ the amount of biologically productive space with ‘world average productivity’ necessary to maintain the current material throughput of the human economy under current management and production practices. The footprint is not made on a continuous piece of land; it corresponds to the aggregate land and water area that is drawn on in various ecosystem categories. The footprint of a nation measures its total resource consumption by adding imports to, and subtracting exports from, its domestic production.

I would not underplay the operational difficulties and indeterminacies in supplying such accounts, but recent work developing the methodology in calculating ecological footprints suggests at least that more reasonable approximations to real resource usage can thereby be supplied than by any form of accounting based on less comprehensive criteria. Such accounts also depict a pattern of distribution which has significant correlations with the distribution of economic wealth (see e.g. Venetoulis et al., 2004). They thus tend to confirm Beitz’s intuition that a country’s wealth depends on its command of natural resources, providing that we take a full account of the resources at its disposition and not only of those which happen to be its natural territorial allotment. The question then becomes whether the inequalities revealed in this distribution are or are not unjust – and thus whether they do or do not warrant a principle of redistribution.

Justice and Ecological Space Utilisation

If inequalities of ecological space utilisation do (unlike territorial endowments of natural resources) correlate positively with economic inequalities, then it is
reasonable to maintain that if redistribution is warranted in order to offset injustices of ecological space utilisation, it is economic benefits that may actually be redistributed. The question for this section is whether redistribution is warranted. For this to be the case it would have to be established why inequalities of ecological space utilisation are unjust. I develop my account of why they are by anticipating arguments to the contrary.

A potential justification for inequalities was implicit in an earlier comment on Beitz. Emphasising that natural resources normally only attain any use value, and thus only become the potential subject of distributive justice, through development, I suggested that those who engage in the development have a prima facie right to enjoy the benefits of the valorised resources. This reasoning carries clear resonances of the Lockean justification for initial acquisition of property rights in the ‘state of nature’. In the Lockean state of nature, there are initially no individuated property rights and the ‘world’ is assumed to be held by ‘all in common’. But, because the use value of nature is for the most part only realised through the application of human labour, the agent that labours to create the value is entitled to enjoy its benefits. There is no injustice in this, on the Lockean account, since any other agent could do the same. The condition which guarantees there is no injustice is normally referred to as a proviso: namely, that ‘enough and as good is left for others’. This proviso places a constraint on developers’ prima facie right to enjoy the benefits of valorised resources.

Now the utilisation of ecological space should be conceived as the ongoing initial appropriation of nature by humans. The utilisation of an amount of ecological space by any particular party would accordingly be just if, adapting the Lockean proviso, ‘enough and as good’ ecological space remains to be utilised by all other parties. Since any given amount of ecological space is as a point of methodological principle ‘as good’ as any other equal amount, then the proviso would require that enough ecological space remain for utilisation by others. This means, in present circumstances, that justice requires entitlements to equal shares of ecological space. Certainly, an entitlement to ‘enough’ is not literally the same as an entitlement to an equal share, and, considered in the abstract, further, non-Lockean reasons would be required to support the egalitarian conclusion. In the abstract, ‘enough’ could conceivably be allowed to all while yet a surplus remained for distribution according to a principle other than equality. However, in a world where some billion people do not have ‘enough’ for a decent life chance, and the ‘enough’ of others could only be secured to everyone if three spare planet earths existed to supply it, no such principle could reasonably be applied. Of course, different individuals may have different needs and capabilities so that the ‘enough’ for one differs from the ‘enough’ for another, and therefore an equal distribution of resources among them may not be appropriate. However, while within any given society distributive decisions of social policy should indeed recognise a range of metrics
of justice, I assume that variations in natural endowments of individuals are sufficiently similar in all populations of the human species for aggregated per capita equality to be an appropriate principle of global justice in a world of states.

When ecological space utilisation is conceived as initial appropriation, the only justified inequalities arise with economic gains achieved by a more efficiently productive extraction of benefits from one’s equal share of ecological space. The justification does not extend to inequalities in shares of the resource base itself. The justifiable inequalities would tend to be localised, temporary and marginal. I shall say more about this below, but first there is an obvious complication to address.

Once we admit the possibility of ecological efficiency (or ‘resource productivity’) gains, we must contemplate the prospect of their being used to cumulative effect and thus creating greater and more pervasive inequalities. Suppose that from a given bundle of resources, fully accounted in ecological terms, A can yield more net economic benefit than B, there is no evident injustice in A continuing to enjoy that greater benefit. But given that A can produce greater benefits than B can, it would be rational for B to trade its own share of the resource with A. That is, if A would pay B a price representing a greater benefit than B could achieve by developing the bundle of resources for itself, then it would be rational for B to accept the deal even though A might retain a larger share of the surplus. There would appear to be nothing self-evidently unjust in the inequalities arising from such trading practices, at least considered purely in themselves. Yet as a result, A’s total wealth represents a greater command of ecological space than B’s. So, once we consider the effects of trade, the principle of equal ecological space entitlements appears to be undermined. This raises the question whether the net beneficiaries of international trade have redistributive obligations or not.

In liberal thought generally, in its political theory as well as in its political economy, the effects of free trade are presumptively just, even where they give rise to dramatic inequalities. For, the theory of comparative advantage holds that among trading partners there will – ceteris paribus – be an aggregate efficiency gain, and although how that aggregate gain is apportioned will depend on other factors, with the stronger partners (i.e. those with more absolute advantages) normally acquiring the greater proportion, for reasons conventional liberal economics can avow, the weaker – poorer – partners will still get something. So the theory leads us to expect, ceteris paribus, that while economic inequalities between stronger and weaker trading partners would continue to increase, the weaker partners would at least continue to get better off as a result.

Yet, for many nations in the world this expectation appears to be unfulfilled (Pogge, 2002). If we ask why a poor nation may continue to get poorer, not only relatively but in absolute terms, several possible answers are familiar from
theories of international political economy. However, the further one I want to set out here – and one which has a key relevance regardless of what explanatory power the others may have for particular cases – is that the total global resource base cannot accommodate an indefinite expansion of productive economic activity. The depletion of available resources eliminates the gains of the worst off – those who have traded away their resources – before it seriously affects the richer who are still working with the gains accruing as a result of the compound advantages they enjoy over the poor.

So, while efficiency-based arguments may justify local and temporary inequalities in circumstances conceived statically, they should not be assumed to justify inequalities that are cumulative or systematic – which is how the dramatic inequalities between global rich and global poor appear when viewed more dynamically. On a static view, the failure of a poor state to benefit from its comparative advantages is due either to its failure as a state or to failures of the market to transmit the gains as in principle it ‘should’ (see next paragraph). On a more dynamic view, however, the consequences of the rich and powerful recurrently drawing relative advantages of trade lead, in circumstances of contextual finitude, to the further immiseration of the poor in absolute terms. Because of the finitude of the global resource base, the inequalities between global rich and poor are symptomatic not simply of state or market failure but of relationships that are systematically exploitative.

This is something denied by David Miller. He recognises that aspects of current international economic relations embody exploitation, but he denies that such exploitation is systematic enough to warrant as a corrective the application of a general redistributive principle. If an archetypal case of exploitation is where small cash crop producers have their prices driven down by oligopolistic purchasers, the solution, for Miller, is to create a more genuinely free market for cash crops: ‘we should ask what price coffee or bananas would sell for in a free market in order to give us a benchmark for judging how far the producers are exploited by the bargaining process in the real world’ (Miller, 1999, p. 207, emphasis in original). I would not deny that the situation of the poor could be improved through breaking up trading monopolies and dismantling tariff barriers that discriminate against imports from poor to rich countries. Yet, to suppose that trade liberalisation superimposed on a situation of dramatic and systematic inequalities with respect to the command of resources would prevent the further intensification of deprivation and exploitation of the world’s poor is mistaken.

It is mistaken, conceptually, because the idea of a ‘genuinely free market’ which determines objectively fair prices is a chimera, since a market price is determined by effective demand, and effectiveness of demand is inherently contingent on empirical factors – especially the actual distribution of wealth and power (to which a more genuinely ‘free market’ would allow more genuinely free rein). A ‘fair’ market price thus presupposes a ‘fair’ distribution of wealth.
and power. Yet it is precisely the ‘fairness’, or justice, of the current global distribution of wealth and power which is at issue.

It is also mistaken materially, as is highlighted in Alf Hornborg’s explanation of how natural resource inequalities and economic inequalities are mutually reinforcing in a cumulative and systematic fashion. Adapting Georgescu-Roegen’s approach, Hornborg shows that, viewed from a biophysical perspective, global patterns of trade reveal a prevalent occurrence of an ‘unequal exchange of resources’, that is, ‘uneven flows of real resources such as energy, labour time, and hectares of land productivity’ (Hornborg, 2001, p. 33). From the biophysical perspective, finished products represent an increase in entropy and material disorder compared to the resources from which they were produced. Yet, from an economic view they have a greater value as represented by price. The growth represented by the increase in the value of products in the economic system is only achieved at the ‘cost’ of a diminution of the ecological system’s capacity to maintain the supply of intact resources. Accordingly, taking a longitudinal view of the transformation of a given set of natural resources – fuels and raw materials – into an industrial product, we see a negative correlation between the amount of negative entropy embodied in a product and its price. Hornborg spells out the socio-economic consequences of this negative correlation: ‘industrial centers exporting high-utility commodities will automatically gain access to ever greater amounts of available energy from their hinterlands. The more energy they have dissipated today, the more “new” energy they will be able to buy – and dissipate – tomorrow’ (Hornborg, 2003, p. 6). Meanwhile, ‘the non-industrial sectors must experience a net increase in entropy as natural resources and traditional social structures are dismembered’ (Hornborg, 2001, p. 11). Because of this social transfer of entropy and material, world trade can be regarded as exploitative – of the poor by the rich – in relation to natural resources. The notion of a reasonable market price ‘conceals the fact that what is being exchanged are intact resources for products representing resources already spent’ (Hornborg, 2001, p. 47).

Once the depletion of resources starts to take effect, the circumstances which made considerations of efficiency relevant to justifying the fairness of free trade no longer obtain. The key point is that, normatively, there is a difference between allowing efficiency gains from an equal share of a single resource base and justifying inequalities in the share of the resource base itself. When we conceive of resources in terms of ecological space it is the latter inequalities that require justification.

The liberal presumption of the justice of free trade misses the crucial point that utilisation of ecological space represents the ongoing ‘initial acquisition’ of natural resources, and is thus a matter that should, on standard liberal accounts of distributive justice, be subject to a different principle from justice in transfer and also, crucially, a limiting proviso. The Lockean liberal tradition defends two different principles of justice which are taken to govern two distinct kinds
of activity: ‘initial appropriation’ on the one hand, and ‘transfer’ on the other (Nozick, 1974). The former is subject to the ‘sufficiency proviso’; the latter is not. That inequalities arising from ‘just transfers’ may have the effect of contravening the sufficiency proviso is a thought that theorists in the Lockean tradition have generally assuaged by putting their faith in the ultimate ‘trickling down’ of aggregate efficiency gains. However, that faith rests not only on assumptions about the ultimately benign distributive effects of market transactions in a world of moderate scarcity, but more critically on the cornucopian assumption that there is no limit to the gains human ingenuity will make possible (a faith made explicit in Mark Sagoff’s [1998] misdirected ‘critique’ of ecological economics).

The background liberal assumption, then, is that the question of justice of initial appropriation of natural resources need not be considered a ‘live’ one. Theories and principles of justice can concentrate on the distribution of valorised resources as represented by economic income and wealth. Natural resources may be the material substrate of wealth, but there is nothing about this fact that requires accounting for in economic thought, or therefore in political reflection on the economy.

The concept of ecological space, however, restores the question to centre stage. Once natural resources are conceived in terms of ecological space there can be no ‘justice in transfer’ which can be conceived in indifference to justice of initial appropriation. For the initial appropriation of natural resources is precisely what ecological space accounts track. The idea of initial appropriation may conjure images of direct physical interaction with a parcel of territory, but there is no particularistic territorial reference for the concept of ecological space other than the planet earth as a whole; physical interaction with the natural world continues to occur not only in prospecting and cultivating, but also through the production, pollution, use and disposal of all physical products – and even as they change hands through trade.

The justifications for inequalities arising from trade and productivity considered in this section are inapplicable to the distribution of ecological space because the total global resource base cannot accommodate an indefinite expansion of productive economic activity. I conclude that global inequalities are such as to warrant redistribution. The final question is whether it is really necessary to conceive of natural resources in terms of ecological space to arrive at this conclusion.

Is the Ecological Space Approach Really Necessary?

I identified various problems with Beitz’s redistributive argument, but is the concept of ecological space required to overcome them? In what follows I show that the alternative approaches so far proposed, at any rate, do not succeed in pre-empting my claim that it is. I shall attend particularly to Hillel Steiner’s
approach. His argument does not presume that the outcomes of trade are immune to the Lockean proviso, and it also appears to show how redistributive justice can apply to natural resources without disregarding the question of their connection to economic value, without denying entitlements grounded in industriousness and without requiring transfers from the resource-endowed poor to the less endowed rich nations. It thus holds the promise of resolving the issues I have raised for Beitz. I demonstrate, however, that this promise is unfulfilled precisely because natural resources are not conceived in terms of ecological space. Some briefer remarks will also be made about the influential position of Thomas Pogge.

Steiner’s proposal is to institute a universal land tax, whose redistributive aim is to share out the economic value of natural resources on an equal global per capita basis via a Global Fund. Thus, a country which, like Japan, for instance, is relatively resource poor but economically rich would have a tax liability based on its land’s market value rather than (purely) on the value of natural resources on its territory. This would certainly promise to resolve one problematic implication of Beitz’s argument – that of requiring transfers from, say, Gabon to Japan. However, we need to consider how he takes a land tax to represent a principle of natural resource redistribution.

On Steiner’s conception of natural resources, these are ‘compendiously describable as constituting a set of territorial sites’ (Steiner, 1999, p. 175). His resource-egalitarian principle is conceived not in terms of a right to a share of natural resources per se but as ‘a right to an equal portion of the aggregate global value of territorial sites’ (Steiner, 1999, p. 175). The value of a territorial site is calculated as ‘the difference between the aggregate market value of all its contents and the aggregate market value of those of its contents that constitute improvements made to it by human activity’ (Steiner, 1999, n. 12, pp. 189–90). Since the value of the site is not derived directly from a valuation of its resource contents but is imputed from the stated calculation, we need also to note how the difference between the value of unimproved and improved contents is arrived at, and how a computation that puts, for example, Japan back near the bottom of the league for unimproved resources is ruled out. Steiner’s approach in essence is a global adaptation of Henry George’s (1882) idea of a land tax. George’s intent was to address the injustices associated with the unearned income represented by rents and to undercut the scope for speculation on land values. He was struck by how through the mere occupation of productive land owners could drive up rents and how the economic value of unimproved land can increase simply by virtue of developments going on in its vicinity. Thus a plot of derelict land in downtown Tokyo, for instance, will have considerable rental value, none of which is due to improvements of that plot itself. The Georgist philosophy holds that this unearned rental value should not accrue to the undeserving owner but should be considered part of humanity’s common heritage. This supplies the basis for Steiner’s differentiation between
unimproved and improved values: the economic value of the derelict land indicates the value of the unimproved element of sites in downtown Tokyo generally. However, this kind of calculation is entirely insensitive to the natural properties of a site. By adopting this approach, Steiner’s argument works by substituting land values for natural resources as the distribuendum of redistributive justice. He succeeds in getting economic value into the picture only by cutting natural resources as such out of it. My complaint here does not regard Steiner’s methodological abstention from attempting to attribute economic value directly to natural resources; it is rather that he leaves as a mystery how our illustrative acre of derelict land can be taken to represent the equivalent of a much greater area of naturally abundant territory while simultaneously supposing these respective parcels are being considered under the description of natural resources. There is no comparable mystery about how a population’s aggregate economic wealth corresponds to its aggregate ecological space utilisation.

A related issue arises when we consider whether Steiner’s approach avoids the problem (as registered in my criticism of Beitz) of denying entitlements grounded in industriousness. Certainly, the distinction between improved and unimproved sites would seem to accommodate just this point. However, applying the Georgist principle in an international context introduces a problem that does not arise in the original domestic context. The argument in its original version cut against individually unproductive owners whose land increased in value due to the productive efforts of others. The international version, however, is vulnerable to the response that if the industriousness of the Japanese people has made Tokyo a more desirable location than other global sites, this is due to their own efforts, not to the efforts of others or to their natural resource endowment, and thus benefits derived from it are ‘earned’. In what way, then, is their position comparable to that of a speculative land investor who gains ‘uneearned’ profits from rent? If there is any defensible principle for affirming a comparison of this kind, it must depend on assumptions about the connection between economic wealth and natural resource possession that are not explicit in Steiner’s approach. For how can we explain that the Japanese economy is in some portion indebted to the Global Fund for the economic benefits it derives from unimproved resources when its own territorial possession represents a significantly smaller proportion of the earth’s natural resources?

The comprehensive accounting of the ecological space approach can answer this question. Steiner’s approach turns it into a mystery: if Japan’s territorial sites have somehow acquired a body of unimproved resources that evolutionary processes did not bestow, whence did they come? So, while Steiner’s approach is similar in structure to the one I commend, its flaw is its conception of natural resources as ‘compendiously describable as constituting a set of territorial sites’. The remedy is to conceive of them in terms of ecological space.

There is one further objection to Steiner’s approach which would stand independently of all of the above. Because this relates to an advantage he claims
for his approach over that of Thomas Pogge, I shall also take the opportunity to note why the latter also does not obviate the need to appeal to the idea of ecological space.

Pogge’s proposal for effecting global redistribution as compensation to the poor for their exclusion from adequate access to natural resources envisages the levying of a Global Resource Dividend (GRD) (Pogge, 2002, pp. 196–215). This levy would apply to the value of (certain) natural resources if and when they are extracted or harvested and presented for sale on the market. Steiner notes that the crucial difference between Pogge’s GRD and his own Global Fund proposal concerns the tax base to be used:

In Pogge’s account, that base is the aggregate value of only used resources, with only some proportion of that value to be taxed. Whereas for the Global Fund (and, I think, for Beitz), that base is the aggregate value of owned resources – whether used or not – with that value to be taxed at a rate of 100 percent (Steiner, 1999, p. 183, emphases in original).

Steiner believes his proposal would be more strongly redistributive in favour of the poor. Whether or not it would, however, what I would stress is that any tax (whether 100 per cent or less) levied on the value of natural resources possessed, even when unused, acts as a disincentive to conserve resources. So, I consider it a merit of Pogge’s proposal that his GRD is intended, albeit as a secondary effect, to make resource exploitation more expensive and thus serve the ends of conservation as well as those of eradicating world poverty.

The reasons I do not simply endorse Pogge’s proposal, however, and as I spell out in more detail elsewhere (Hayward, 2005), are the following. For one, the GRD applies only to selected natural resources, not all of them, and there is a certain normative arbitrariness in this. The objection is not to Pogge’s understandable concern to exempt, for instance, the cultivation of basic commodities, but to the more fundamental principle of levying the GRD only at the point where resources harvested or extracted enter the export market. If a tax on natural resources is intended to have progressive redistributive effects, there is a case for levying it on those who ultimately derive more economic benefit from the exploitation of raw resources rather than on those who, engaged in primary harvest or extraction, will generally yield the least added value from the resource. Otherwise, those most dependent on raw material exports are liable to taxes while the industrialised rich are much more marginally affected, even though their command of resources, as more fully calculated in terms of ecological space, is much greater. Thus, the GRD’s impact on the revenue-raising side cannot be assured to spare those, the poor, whom it aims to benefit. Furthermore, there is a corresponding reason to query how effectively the GRD could fulfil its secondary, but still important, aim of promoting conservation and environmental protection. If the cost of raw materials is relatively small in proportion to the value they can be brought to yield
at later productive stages, then a tax on them would not provide any very strong disincentive to desist from continuing to exploit them in order to reap those subsequent economic gains. So, it is doubtful whether the GRD would incentivise the conservation of resources or either, therefore, serve to reduce the environmental impacts of their subsequent transformations, use and disposal. A tax related to use of ecological space, by contrast, could systematically track the environmental costs of economic benefits, and thereby more reliably achieve both of the GRD’s objectives. It would have a generally progressive effect among economically unequal nations because levels of ecological space usage tend to correlate empirically with levels of economic wealth. The normative justification for levying the tax, however, would relate not to the degree of wealth of a nation (part of which might be claimed to be ‘deserved’) but to the degree of its excess use of ecological space. I therefore affirm that Pogge, like Beitz and Steiner, works with a concept of natural resources which is less adequate to theorising global justice than is the concept of ecological space.

Conclusion

So, what should a political theorist say about the justice of the global distribution of natural resources when these are conceived in terms of ecological space? The foregoing arguments suggest that, as a basic norm, a globally equal per capita right to ecological space should be recognised. On that basis, justice requires of ‘ecological debtors’ a long-term commitment to reduce their ecological space utilisation to the permitted level. More immediately, justice imposes an obligation on them to redistribute the economic benefits they have derived from their excess use, perhaps via the kind of global fund envisaged by Steiner and Pogge. As long as fiscal powers are reserved to nation states, they must be responsible for forwarding the funds. Allowing states to choose exactly how to raise the requisite funds within their own jurisdiction is recognition of their sovereign rights; requiring them to do so is recognition of their responsibilities as co-inhabitants of a delicately-balanced global ecosystem.

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Notes

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1 The work in which it appears was first published in 1979 and is widely recognised as seminal. The specific argument about justice in relation to natural resources continues to be cited as one to reckon with, including by the other authors I discuss. I do not, however, assume or intend to imply that Beitz himself, 25 years on, holds identical views to those discussed here. All further references to Beitz should accordingly be understood to refer to Beitz (1979).

2 For present purposes these difficulties are bracketed out, but in practice they would be significant. The ecological space concept assimilates myriad types of real space-occupying biophysical processes into notionally homogeneous units, and such assimilation presupposes commensurabilities which can be contested. Also contestable is whether some biophysical processes should be treated as resources at all. Were ecological space accounting to be implemented as a measure for global justice, this would require the institution of an agency commanding both scientific expertise and transparent – democratically legitimated – procedures for agreeing appropriate commensurabilities. For an introduction to just some of the controversies to be negotiated see Hayward (1995).

References


