Article

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Property Rights, Future Generations and the Destruction and Degradation of Natural Resources

Abstract: The paper argues that members of future generations have an entitlement to natural resources equal to ours. Therefore, if a currently living individual destroys or degrades natural resources then he must pay compensation to members of future generations. This compensation takes the form of "primary goods" (in roughly Rawls' sense) which will be valued by members of future generations as equally useful for promoting the good life as the natural resources they have been deprived of. As a result of this policy, each generation inherits a "Commonwealth" of natural resources plus compensation (plus, perhaps, other things donated to the Commonwealth). It is this inherited "Commonwealth" which members of that generation must then pass on to members of the next generation.

Once this picture is accepted, the standard bundle of property rights is problematic, for it takes the owner of a constituent of the Commonwealth (e.g. that gallon of oil) to have the right to "waste, destroy or modify" that item at will. This paper therefore presents a revised set of property rights which takes seriously the idea that each generation has an equal claim on the resources that nature has bequeathed us, whilst allowing certain effects on those natural resources by each generation, and a degree of exclusive use of those natural resources owned by an individual.

Keywords: natural resources, property rights, future generations, climate change, inheritance

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1 Introduction

Many share Brian Barry's intuition that natural resources are not the exclusive property of the current generation to damage and destroy as we wish.[1] Locke's famous intuition is similar: that each may appropriate only so many natural resources as to leave others – presumably including all future generations – with "enough and as good" a share.[2] Climate change, the consumption of natural resources and the despoilment of nature give urgency to the concern most people feel about their effect on members of future generations. Indeed, how we deal with these issues may determine whether future generations even exist.

This paper argues that it would be arbitrary for members of an earlier generation to be entitled to more than a later generation simply because they came earlier. Therefore, if someone today damages or degrades (e.g. by burning oil) the natural resource inheritance of members of future generations, then he deprives them of the inheritance they are entitled to. He can avoid wronging them if he pays for mitigation measures (such as carbon offsets) and provides them with compensating goods (e.g. scientific, technological and medical advances; a useful built environment; the arts; a more educated, ethical and harmonious society) which they will find as useful for living a good life as the natural resources they have been deprived of. If most people do this – perhaps as a result of being compelled by government – then the next generation inherits a "Commonwealth" of natural resources plus compensation (plus, perhaps, other things donated to the Commonwealth). It is this inherited "Commonwealth" which that generation must then pass on to the next generation.

Once this picture is accepted, the standard bundle of property rights is problematic, for it takes the owner of natural resources (e.g. a gallon of oil) to have the right to "waste, destroy or modify" that item at will. This paper therefore presents a revised set of property rights which takes seriously the idea that each generation has an equal claim on the resources that nature has bequeathed us, whilst allowing certain effects on those natural resources by members of each generation, and a degree of exclusive use of those natural resources owned by an individual.

This paper first provides a justification of the proposed account, then develops the account further through an examination of issues such as

1 Brian Barry, "Sustainability and Intergenerational Justice", in *Fairness and Futurity. Essays on Environmental Sustainability*, ed. Andrew Dobson (Oxford: Oxford University Press, 1999).

2 John Locke, "The Second Treatise of Government", secs. 27, 33, in *Locke: Two Treatises of Government*, ed. Peter Laslett (Cambridge: Cambridge University Press, 1967).

responsibilities to other countries, compensation for past acts which degraded natural resources and practical implementation. Finally, it develops a revised set of property rights which can provide the legal underpinning for transactions in a society run along the lines proposed.

2 Reducing future generations' inheritance of natural resources

I take it that we have a shared sense of natural resources being composed of the earth including its oceans, rivers, atmosphere, climate, flora, fauna, metals, minerals and so on. Roughly speaking, what would have been here had mankind (and closely related species such as Neanderthals) not evolved. There might be certain points where it is not clear exactly how to draw the borderline – for example, to what extent are domesticated cattle, hedgerows and a field of wheat, natural, and to what extent the product of human labour? Fortunately most cases are more straightforward than this, so accurately drawing this borderline can be postponed for another time. This paper focuses on how to deal with that which we decide to count as natural resources.

Natural resources can be employed in a way which does not reduce future generations' inheritance of natural resources. For example: sustainable farming, hunting and fishing; building homes and boats from wood taken in sustainable logging, and so on. Natural resources are however commonly affected by the activity of members of the present generation in a way that negatively impacts on future generations' inheritance of natural resources. Here are some of the ways.

First, the natural resource may be destroyed. For instance, oil is destroyed when used for fuel, thereby depriving future generations of it.

Second, the resource may be damaged, despoiled or degraded, as for example farmland is through over-farming, and as the climate is by excessive CO_2 production, and as rivers and oceans are by pollution with chemicals. Other ways that mankind may destroy and degrade natural resources include via precipitate introduction of inadequately tested new technology, accidents (e.g. nuclear accidents and experiments which go wrong) and war.

Third, the resource may be rendered less accessible or inaccessible. For example, when copper manufactured goods are employed some copper is lost in oxidization, wear and tear, and so on. The copper atoms are not destroyed, but become dispersed thinly and widely in the environment making them effectively unrecoverable. Likewise the natural resources tied up in household rubbish (plastic bottles, metal cans, old electrical equipment, etc.) dumped in

landfill are not in principle unrecoverable, but only recoverable with much greater difficulty, and much greater energy use, than when originally mined. This means earlier generations mine all the most easily accessible seams of natural resources such as boron, lithium and uranium, leaving for future generations only less accessible seams – often deep below the earth or the oceans, which, if they can be mined at all, can only be mined with much greater difficulty and energy use.

Fourth, biodiversity may be reduced. The worst case is where species are rendered extinct. However, genetic diversity may be reduced through the number of members of a species being significantly reduced through the species being deliberately hunted and/or as a side effect of manufacturing, farming and logging. In addition, genetic diversity may be reduced through humans selectively breeding plants and animals with certain features; and climate change, pollution, and other changes to the environment making it the case that members of a species with certain characteristics are more likely to survive.

Fifth, pollution, genetic engineering and other risky new technology may change genes in a way which would never happen naturally simply through selective breeding or changes in habitat.

There are doubtless other cases too. With further research mankind will deepen understanding of these matters. Although currently our most pressing concern is climate change, perhaps in a few hundred years we will have plentiful clean energy (nuclear fusion perhaps) and the climate will be recovering, but other ways that we degrade natural resources will be more problematic. In what follows I will talk of destroying and degrading natural resources as shorthand for all the activities which mankind can engage in which decrease the natural resource inheritance of future generations. This paper develops a philosophical framework for understanding our obligations to future generations whatever form our destruction and degradation of natural resources takes.

Whilst *some* natural resources are constantly regenerating – oil and natural gas are continually being formed in the earth's crust, plants and trees are growing, animals are reproducing, the ozone layer replenishes itself, and so on – this is a comparatively slow process. Other natural resources do not regenerate. For instance, the total deposits on earth of the various elements (iron, uranium, lithium, boron, gold, etc.) are fixed (and it remains unclear to what extent, if any, some of them can in the foreseeable future be economically mined from passing asteroids or other planets in our solar system ...). Consequently, as the current generation depletes natural resources at a greater rate than they are being regenerated, (if they are regenerated at all) future generations will inherit fewer natural resources than the current generation. What implications does this have for what we should do?

3 Equal distribution of natural resources

In what follows, it will be helpful to distinguish between the natural resource component and the labour component of things. Imagine Edith casts a small lump of gold into the shape of a ring. We can distinguish the gold – the natural resources which existed independent of her labour – from her labour of casting the gold. Thus, the gold ring embodies both the natural resource and her labour. If Edith smelts the ring back to roughly its original shape, then the "embodied labour" component of the ring is destroyed, although the natural resource remains unaffected. If she then casts the gold into a broach then this broach is composed of both the original natural resource and a new "embodied labour" component.

Without Edith's choices and movements, her embodied labour would not exist (e.g. the gold would still exist but the ring would not). Thus, the embodied labour component of a thing always has a unique link to the individual(s) whose labour it is. As a result, there are grounds for debate about whether the state is entitled to take Edith's labour by force and redistribute it to others, and if so to what extent and in what circumstances. This paper does not explore this debate and is neutral with regards to its outcome.

In contrast, natural resources would have existed had no persons ever existed. As a result of this, there are no grounds for giving one person a smaller share of natural resources than another. To illustrate this, Dworkins asks us to imagine a group of shipwrecked mariners washed up on a lush fertile unpopulated island.[3] He argues that they would agree upon an equal distribution of the resources. Each person is worthy of equal respect and consideration. No person is responsible for the existence of these natural resources, no person's labour and ingenuity has made them exist. As such no person is entitled to more than another person. There are no grounds for giving one person more or less than another. To do so would be arbitrary. Furthermore, an equal distribution is the only distribution upon which they could all agree. This is therefore the default position.[4] In Hillel Steiner's words:

> each person [has] an entitlement to an equal share of all natural resource values, since natural resources ... are objects for the production of which no person is responsible.[5]

3 Ronald Dworkins, *Sovereign Virtue*: *Equality in Theory and Practice* (Cambridge: Harvard University Press 2000), Chapter 2.

4 Of course in practice one person or group might attempt to take more by force, but we are interested in what should be done rather than what would be done.

5 Hillel Steiner, "The Global Fund: A Reply to Casal", *Journal of Moral Philosophy* 8(3) (2011): 328–334. See also Hillel Steiner, *An Essay on Rights* (Cambridge, MA: Blackwell, 1994) and Henry George, *Progress and Poverty*, 5th edition (New York: D. Appleton and Company, 1882). Reprinted by Robert Schalkenbach Foundation, 1966.

Imagine the currents wash up Roberta a couple of days before the others, and by the time they arrive she has fenced in quarter of the island and traversed it sowing seed. Roberta claims this entitles her to possession of that quarter of the island.[6] However others may reject this. Why should being the first to grab, enclose, claim, use or mix labour with a natural resource, entitle a person to absolute possession of that natural resource? *Even if* they accept that her embodied labour is hers (which they may not), they may deny that the disproportionate share of natural resources is hers. They can rather say her embodied labour is mixed with someone else's share of natural resources.

The right-libertarian "finders keepers" system of initial acquisition is largely arbitrary – leaving largely down to chance who gets the opportunity to claim resources. This is not just. In particular, it treats unfairly subsequent generations because they have no chance of making the initial acquisition. Thus, if we reject having an arbitrary basis to our ethical and political systems, then we will reject the "finders keepers" view of natural resource acquisition in favour of the aforementioned equal distribution.

The equal distribution of natural resources gives each mariner a measure of independence and choice over how his resources are employed. A mariner who prefers to work less might farm only half his land and rent out the other half to a mariner who wishes to farm more land to produce more. A mariner who plies his trade as a doctor and musician could rent out all his land apart from that he lives on; as could a mariner who has a physical or mental illness or disability.

Transposed to today's world this means that each citizen of a country (or in the ideal case, the world) is taken to own an equal portion of the natural resources of that country (or the world), including the land and to therefore be entitled to the proceeds from renting out his portion. In practice, this is most efficiently implemented by the government (or all governments in the world working in concert) collecting the rent on all land (calculated based on its market value in its unimproved state – for improvements constitute embodied labour, which is dealt with separately). It might also charge rent on possession of other scarce natural resources such as gold, titanium, and so on. The proceeds raised would then be distributed equally to all citizens. (Such an arrangement would leave everyone better off than if each person were to take possession of a certain portion of land, gold, and so on and to rent it out independently, for that would lead to inefficient use of resources and high administrative costs.)

6 As claimed in Robert Nozick, *Anarchy, State, and Utopia* (Oxford: Blackwell, 1974). See Also Locke *ibid*.

The foregoing equal distribution of natural resources brings a certain level of redistribution of wealth. That there should be no less than this level of redistribution can be accepted by a wide range of philosophical and political viewpoints.[7] Indeed those who do accept it range from left-libertarians such as Steiner to Luck Egalitarians such as Dworkins to Rawlsians such as Beitz.[8] It could also be accepted by Sufficientarians, Prioritarians and various other stripes of Egalitarian. Many of these think that there should *in addition* be redistribution of *embodied labour* to the less talented, disadvantaged and disabled from the better off: they can graft a justification for this onto this paper's account. This is what Dworkins himself does, when he goes on to postulate his hypothetical insurance scheme as a way of justifying redistributing embodied labour from the better off to those who are worse off due to bad brute luck. Others provide different justifications for redistribution of embodied labour. Left-libertarians oppose redistribution of embodied labour. As already mentioned, this paper will not enter the debate on redistribution of embodied labour – whether between currently living people or between generations. Rather it speaks to the wide range of people who can accept that each person is entitled to an equal share of natural resources and explores the implications of this for our obligations to future generations.

4 Objections

To help us refine the view outlined in the previous section, let us examine Pogge's objection to the way Hillel Steiner envisages implementing the equal inheritance of natural resources at the global level. Steiner says:

> natural resources, [by which] I mean, at its broadest, portions of physical space. This compendiously includes all global surface areas and the supra- and sub-terranean spaces contiguous to them, as well as the natural objects they contain. ... Owners of these sites ... are liable to a 100% *Global Fund* tax on their unimproved value: that is, their gross market value *minus* the value of the improvements added to them by human effort. ...[9]

7 A similar claim is made by Paula Casal, "Global Taxes on Natural Resources", *Journal of Moral Philosophy* 8(3) (2011): 307–327 esp 313.

8 Charles Beitz, *Political Theory and International Relations* (Princeton, NJ: Princeton University Press, 1999). See also Steve Vanderheiden, *Atmospheric Justice* (Oxford: Oxford University Press, 2008). They nevertheless take the argument in a different direction to mine. Their arguments are criticised by Simon Carney in "Just Emissions" *Philosophy and Public Affairs* (2012).

9 *Ibid*. This paper will ignore Steiner's proposals concerning germline information – this is, afterall something which cannot be redistributed and shared out in the way that land and other natural resources can.

The funds raised by this global tax on all the physical spaces of the world is paid into the "Global Fund"

> to an equal portion of which each person – each moral right-holder – has a claim. The payment of this claim could take the form of an unconditional basic income, an initial capital stake or various possible combinations of these.[10]

Thomas Pogge[11] claims there are three problems with Steiner's suggestion. However, Steiner's account can be modified in such a way as to no longer be vulnerable to these. Let us look at each of Pogge's objections in turn. First, Pogge points out that Steiner ignores future generations and the implications for them of the destruction and degradation of natural resources. This paper will rectify this.

Second, Steiner focuses on geographical space, so someone might take possession of a certain land surface plus the air 50 m above it and all the resources beneath it and pay rent on that total volume. Pogge argues that this encourages greater consumption of natural resources because the more resources have been extracted from a volume of land the lower will be that land's subsequent rental value. He might also add that inadequate knowledge of what lies below the surface might result in too low rent being charged. In response to this objection, three points can be made.

Firstly, to extract resources is not to consume them, only to make them available to be consumed. Therefore given the measures to discourage consumption of natural resources which this essay proposes, the demand from consumers will not be present. Mere extraction is not in itself problematic – and is unlikely to take place without demand from consumers.

Second, this paper puts forward measures which will make our consumption of a measure of natural resources unproblematic for members of future generations (because the consumers will have to pay for mitigation of damage to the environment and provide future generations with compensatory goods).

Third, this paper considers the surface of the land separately from the resources contained below it. If it is the surface of the land (and the air immediately above it) which is rented, and in renting the surface of the land the individual does not take into his possession the resources below the surface of the land (for these remain owned in equal shares by denizens of the nation or world) then the rental value of the surface of the land will not reflect the value of the resources below the surface, thus there will not be the pressure to extract

10 *ibid.*

11 Thomas Pogge, "Allowing the Poor to Share the Earth", *Journal of Moral Philosophy* 8(3) (2011): 335–352.

them in order to reduce the rental value of the land. This move might be coupled with taxing in a similar way to land the possession of scarce natural resources such as diamonds, gold, platinum, boron, lithium and uranium (though this tax would be more difficult to implement).

The third problem Pogge identifies is that Steiner's account allows anyone in the world to bid for the right to live on a particular piece of land. As a result, individuals in one country, England for example, might be priced out of the market for land in their own country. As a result those who currently occupy the English middle classes might have to live in very cramped conditions in their own country or go elsewhere, and the poor would be cast out, having to live in a foreign country with cheap land values. This dissolving of nations, communities and families can hardly be to the good.

There are four ways Steiner might respond. One would be to abandon thinking in global terms and instead think in terms of equal distribution of natural resources within individual states. It can be argued that there are lots of good reasons for taking the nation-state to be the right and best way for large numbers of people to organise themselves. For instance, contractarians such as Rawls think that laws and governance are only legitimate when those subject to them would endorse them on the grounds that they give expression to their shared sense of justice. The nation-state is where shared history, communication and conversation can establish an overlapping consensus and a cohesive shared culture of mutual concern.[12] Because of this it is at the level of the nation-state that legitimate laws and government can be established; and within the nation-state that legitimate redistribution of natural resources and embodied labour can take place.

A second way of responding would be to stipulate that only nationals of country B may rent land in country B – in order to preserve nations – whilst still allowing that their rent be paid into the global fund, to be distributed equally between all persons in the world. This would prevent nationals of that country being outbid by foreigners, so would allow communities and nations to be preserved whilst still maintaining that ultimately everyone in the world is entitled to an equal share of the rent paid on all the land in the world.

A third way of responding would be to accept that the fund needs to operate at a global level, but to point out that what is paid into the Global Fund is only rent due on the *unimproved* value of land, where this can be interpreted as meaning the value of the land when *none* of the land in the country has been developed. For example, if England and Colombia were unoccupied and undeveloped then their land, being similarly fertile, would have similar value and

12 E.g. John Rawls, *The Law of Peoples* (Cambridge MA: Harvard University Press, 2001).

would be worth a fraction of what it currently is. That English land currently commands higher rents than Colombian land is due to the improvements carried out by the English – in building a relatively safe, law abiding, economically efficient, pleasant, tolerant, well-governed democratic country with a comprehensive infrastructure. It is the English who are responsible for English land commanding a higher rent than Colombian land, and thus the difference in value between the two should be paid to the English.[13] Thus on any given acre of England, there will be three elements to the total rent paid. First, there is the rental value of the entirely unimproved land which is paid into the Global Fund. Second, there is the rental on the higher value the land has simply in virtue of being located in England, this is paid into a fund to be shared equally amongst the English. (It is this which will enable the English to afford to continue living in their own land). Third, there are improvements to the land made by a particular individual (e.g. he has drained, flattened and fertilised it) which will raise the rent, which (arguably) he is entitled to.[14]

The final way Steiner could respond would be agree that the consequences would be as Pogge says, but to claim they are not a problem. Nations will sign up to the Global Fund only in the distant future, once there is a very different global culture, with a lack of nationalism and parochialism, and far greater cosmopolitanism. Once individuals consider themselves citizens of the world they will not mind moving around. So just as now many English people accept that due to the high cost of housing they cannot afford to live in the area of England where they grew up, so in future they might accept with equanimity that they cannot afford to live in England.

Finally, let us look at a different objection, made by some Left-Libertarians who do not accept the equal distribution of natural resources as a starting point.[15] They propose giving the less talented, disadvantaged and disabled, a larger share of natural resources than others, who then have to rent from them. However, working out a metric for who should get what is very problematic for this proposal. Moreover, this proposal is criticised from both sides for being neither one thing nor the other. On the one hand, it embraces the egalitarian's aim of engineering equality of welfare (or opportunity for welfare) yet it

13 Casals *ibid* p. 316 footnote 29 notes that this is a line of argument that might be taken. We will see in Sections 8 and 10 that retrospective RIC tax may be payable on the natural resource depletion caused in the process of past building, equipping of factories, and so on, and that some of this compensation will be payable to other countries. Hence, more developed countries will pay more into the Global Fund than less developed one.

14 Actually things are made even more complicated by the value of the planning permission, but there is no need to address this here.

15 Michael Otsuka, *Libertarianism without Inequality* (Oxford: OUP, 2005).

commonly does not provide enough help to those who need it (i.e. where the rent that the land and so on can command is not high enough[16]). On the other hand it may curtail self-ownership (i.e. where it leads to the less talented, disadvantaged and disabled being given possession of all land so others cannot move or live without their say-so[17]). There is not time in this paper to explore in more depth other objections to the equal distribution of natural resources. The remainder of the paper assumes that each person is entitled to an equal share of natural resources.

5 Compensating future generations for our destruction and degradation of natural resources

Let us now extend the foregoing reasoning to future generations. Given that each member of the current generation in a country (or the world) is entitled to an equal share of the natural resources currently existing in that country (or the world), why should not members of future generations in that country (or the world) have an entitlement to natural resources equal to that of members of the current generation? Members of the current generation are no more responsible for natural resources having come into existence than are past or future generations. They have not earned a greater entitlement. It would be arbitrary for members of one generation to be entitled to more than members of another simply because they came earlier. There is no relevant moral significance to being born later, so no moral justification for making the entitlement to natural resources of those who happen to be born later, less than the entitlement of those born earlier. Thus if we reject having an arbitrary basis to our laws and decision-making, then we will reject arbitrarily favouring members of one generation over members of another with respect to natural resources. In this case we will reject the claim that members of current generations are entitled to more natural resources than members of future generations, instead concluding that members of each generation are entitled to an equal inheritance of natural resources.

16 Barbara Fried, "Left-Libertarianism: A Review Essay", *Philosophy and Public Affairs* 32 (2004), pp. 66–92.

17 Jonathan Quong, "Left-Libertarianism: Rawlsian Not Luck Egalitarian", *Journal of Political Philosophy* 19(1) (2011), pp. 86–89. See also Hillel Steiner, "Just Taxation and International Redistribution", in *Global Justice* ed. I. Shapiro and L. Brilmayer, New York: NYU Press, Series: NOMOS XLI (1999), pp. 171–191, p. 175.

How then should we deal with activities which benefit the current generation but destroy or degrade natural resources? This paper proposes that if someone alive now engages in an activity which reduces the natural resources inherited by members of future generations then he should compensate future generations for the consequent reduction in their natural resource inheritance. That way their resultant inheritance – of natural resources plus compensation – is as useful to them as it would have been had the activity not been performed. Only then can the activity be performed without violating the entitlement of future generations.

The simplest way for this to be implemented in practice is by taxing activities that destroy and degrade natural resources. This tax will both discourage such activities, and simultaneously generate wealth which can be invested in: things which will reduce the destruction and degradation of future natural resources occasioned by the activity (such as carbon storage, energy conservation, research into and promotion of alternative energy sources); and things which will compensate members of future generations for their reduced inheritance of natural resources (such as scientific, technological and medical research; investment in the arts and in maintaining and displaying artworks, historical artefacts and important buildings; investment in infrastructure and a useful built environment; investment in education and improving the ethics, culture and public life of the society, and other measures which are likely to be valued by future generations). Let us refer to this as "Reduced Natural Resource Inheritance Compensation" tax: RIC tax for short.

For example, if you burn oil, then you are utilising a resource owned equally by members of future generations. Because you use the oil they cannot use it, and you contribute towards climate change. So you have to pay the RIC tax to fund projects which ensure that the inheritance that you bequeath them – of the remaining natural resources plus compensation – is at least as useful to them as it would have been had you not burnt that oil. Just as if you drive into someone's wall then you have to fund the rebuilding of the wall.

John Rawls described "Primary Goods" as those goods which can be utilised in the pursuance of the good life by people with very different conceptions of what constitutes the good life. He suggests governments focus upon generating these because they can then be confident their citizens will value them despite their varying conceptions of what constitutes the good life. Given that we do not know what future people's conception of the good life will be, it seems it is primary goods (such as those listed two paragraphs above) that we need to provide them with to compensate them for those natural resources we deprive them of.

As a result we bequeath to members of future generations the remaining natural resources plus primary goods which we have produced to compensate

them for our depletion of natural resources. Let us refer to this basket of natural resources and compensatory primary goods as the "Commonwealth" (this definition will be augmented in a moment).

The Commonwealth that we bequeath each future generation should, for them, lie on the same "indifference curve" as our Commonwealth. In other words, it should be such that members of each future generation would have no reason to envy the current generation its Commonwealth. Obviously a measure of judgement is needed in selecting which basket of primary goods is most likely to provide adequate compensation for our degradation of natural resources – but we just have to judge this as best we can.

Note that the Commonwealth can also contain primary goods which are not simply compensation for destruction and degradation of natural resources. Things which are simply "donations" to the Commonwealth. These can range from explicit intentional donations as when someone gives their art collection to the nation or sponsors scientific research, to "by-product donations" such as inventions out of patent and books out of copyright, to roads, bridges, public buildings and so on which were only built in order to satisfy a current need but which also happen to be of worth to future generations.

Members of the current generation have inherited a Commonwealth composed of the remaining natural resources plus primary goods deemed compensation from past generations for their destruction and degradation of natural resources, plus donations to the Commonwealth. They are not responsible for creating this Commonwealth, so are not entitled to damage or degrade it, but rather are obliged to pass it on to future generations. Thus an individual not only has to pay RIC tax on any natural resources destruction and degradation he engages in, he also has to pay RIC tax if he engages in activities which destroy or degrade any other components of the Commonwealth. This means that the state will be RIC taxing all Commonwealth depleting activities, not only those that deplete the natural resource component of the Commonwealth. It will then invest the proceeds in mitigating the damage to, and restoring, the Commonwealth.

Each individual has a moral obligation not to deprive members of future generations of the Commonwealth that they are entitled to. Therefore it is the responsibility of each individual to ensure that the activity he engages in over the course of his life, overall, does not erode the Commonwealth. The state aids him in this by RIC taxing him according to the extent of his Commonwealth eroding activities. However this does not supplant his personal responsibility. Once the RIC tax is in place, there may still be activities which negatively impact upon the Commonwealth inheritance of members of future generations, but which either cannot be effectively regulated or which are such that the resources consumed in regulating them would offset any gains. There are costs associated

with collecting taxes so there may be some activities which are detrimental to the Commonwealth but which are not RIC taxed (for example because the cost of collection would outweigh the amount collected or because there is difficulty identifying the amount of RIC tax due). In such cases, the individual should take responsibility for avoiding or reducing the extent to which he engages in these activities and/or for voluntarily mitigating the effects (e.g. purchasing carbon offsets) and/or compensating members of future generations (e.g. by donating money towards the sorts of projects listed earlier). Governments should educate citizens so they understand their obligations and responsibilities.

Note the fact that John voluntarily donates to the Commonwealth over the course of his life does not then entitle Jill to correspondingly erode the Commonwealth over the course of hers. It is irrelevant that weighing both together there is overall no effect on the Commonwealth. One is individually obliged to not deprive members of future generations of their entitlement and so to not erode the Commonwealth. That John helps Erin or gives something to Erin does not entitle Jill to harm Erin or take something from Erin. Each individual has duties towards each other individual human being. That others behave dutifully or go beyond what duty requires does not entitle one to fail in one's duty to others.

If Jill engages in activity which erodes the Commonwealth without paying sufficient to mitigate this erosion and/or compensate for it (e.g. she goes on a destructive criminal rampage but has no money to pay compensation for it) then John does not have an obligation to future generations to make up for what Jill has done. Each person has individual responsibilities. John is not responsible for what Jill does. Someone must lose out as a result of Jill's action, and there is no reason why it should be John rather than members of future generations. Obviously, John has an imperfect duty to try to prevent Jill from depriving present and future people of what they are entitled to. However, if he does not succeed then why should it be him whose lose out (as a result of being forced to make up for Jill's immoral activity) rather than others (e.g. future people)? Miller explores this in more detail than there is space for here, but concurs that there is no duty of justice to "take up the slack" in such cases.[18] And it is only duties of justice that governments may enforce, he argues. Fortunately, provided the majority act responsibly then it may well be that donations to the Commonwealth will be sufficient to make up for what people like Jill do, in which case future generations

18 David Miller, "Taking Up the Slack: Responsibility and Justice in Situations of Partial Compliance," in *Responsibility and Distributive Justice* eds. Carl Knight and Zofia Stemplowska (Oxford: OUP, 2011). See also Liam Murphy, *Moral Demands in Nonideal Theory* (Oxford: OUP, 2000).

will inherit a Commonwealth no worse than ours despite the existence of people like Jill.

In sum, this paper's discussion implies that each member of future generations has a **Commonwealth Inheritance Entitlement** to inherit a Commonwealth as useful to them as ours. As a result of this entitlement, the state should implement a RIC tax paid by each member of the current generation who wishes to do something which will destroy or degrade the Commonwealth.[19]

6 Objections to the commonwealth inheritance entitlement

Someone might object that what future generations are entitled to inherit is a set of natural resources which is as useful as ours for living a good life, not a basket of primary goods (comprising natural resources plus compensation) which are equally useful for living a good life. Three responses support this paper's stance. The first is merely pragmatic – there is no way all destruction and degradation of natural resources is going to end, so the best that can be done for future generations is that this is adequately mitigated and compensated for.

The second response points out that in law ordinarily property rights are not seen as infinitely weighty. As Schmidtz says "the right to say no is stringent but not absolute."[20] For example, the government may compulsorily purchase your house in order to build a train line through it provided it compensates you. And if you are not around to give consent then someone may take your car in order to get an injured person to the hospital in time to save her life provided he compensates you. We are in an analogous position with respect to future generations: they are not around to agree or deny permission to our substituting other primary goods for natural resources. Without any consumption of natural resources much of modern life, including much modern farming and medicines, would not be possible so very many people would die. To prevent this disaster we need – and so are entitled – to continue employing natural resources. At the same time, we are obliged to ensure that future generations will not lose out because of it. Thus

19 This paper does not have space to explore the thorny issue of changes in population.

20 David Schmidtz, "Property and Justice", *Social Philosophy & Policy* 27 (2010): 79–100. See also, for instance, Joel Feinberg, "Voluntary Euthanasia and the Inalienable Right to Life", *Philosophy & Public Affairs* 7 (1978): 93–123; Loren E. Lomasky, "Compensation and the Bounds of Rights", in *NOMOS XXXIII*: *Compensatory Justice*, eds. J. Roland Pennock and John W. Chapman (New York: New York University Press, 1991), pp. 13–44.

we need to pay the RIC tax which will both mitigate damage to the Commonwealth and pay for compensation which restores the Commonwealth to at least its current worth and usefulness. In addition, if natural resource use is allowed then most future individuals will gain through inheriting private property. Thus, it is reasonable to think that we are entitled to use those natural resources destruction of and damage to which can be compensated for via the RIC tax.

Thirdly, we may employ Calabresi and Melamed's[21] distinction between property and entitlement. Natural resources do not count as the *property* of future generations – for future generations cannot now exercise the set of rights which property owners characteristically exercise (as listed in this paper's final section): they cannot now use the property, transfer the property, choose to exclude or not exclude others from the property, modify the property and so on. Therefore what future generations have is an *entitlement* to a Commonwealth as good as ours, where an entitlement is something which is only protected by liability rules (which are rules which mandate that destruction or degradation of an item be adequately compensated).

Another objection that is sometimes heard is that members of future generations do not have rights or entitlements with respect to how we behave, because they are not in a position to claim or exercise those rights and entitlements. However someone who is asleep, in a coma or seriously mentally handicapped, is not in a position to claim or exercise any rights – but that does not mean we cannot take him to have any rights or entitlements. We can equally well take members of future generations to have rights and entitlements.

Finally, someone might claim that the "non-identity problem" undermines this paper's conclusion.[22] This is the problem that given a choice between policy D and policy E, our criterion cannot be "choose that policy which will most benefit future persons", because different persons will exist in future if one adopts policy D to if one adopts policy E. Thus it cannot be claimed, for example, that policy E is better for future people, because with regards to the people who will exist if policy D is adopted, if it is better for them that they exist than that they do not exist, and if they only exist if policy D is adopted, then it cannot be better for them that policy E is adopted.

In response, note that this paper's claim is not that this paper's account should be adopted because this will be *better* for future people than carrying on as we are. Rather this paper's argument talks about what members of future generations are *entitled to*, regardless of *which* people exist. It argues that

21 G. Calabresi and D. Melamed, "Property Rule, Liability Rules and Inalienability: One View of the Cathedral", *Harvard Law Review* 85 (1972): 1089–1128.

22 C.f. Derek Parfit, *Reasons and Persons* (Oxford: OUP, 1984), pp. 361–364.

whichever people exist in future they will have an entitlement to a Commonwealth that they will find at least as useful and valuable as ours. And because they have this entitlement, we are obliged to now act in certain ways, as described.[23] Thus, this paper's account is not vulnerable to the non-identity problem.

7 Setting the RIC tax level

Usually, the higher the level of the RIC tax on a given Commonwealth depleting activity the less that activity takes place and the higher the level of income that the RIC tax generates to invest in projects which mitigate and compensate for damage to the Commonwealth. For example, the higher the tax on petrol the less is consumed and the more revenue is generated to invest in mitigation and compensation. Thus there will be a level X of RIC tax on petrol which reduces the consumption of petrol to level Y, where the amount of revenue raised pays for sufficient mitigation and compensation to ensure that the Commonwealth inherited by members of future generations is as useful to them as ours.

Sometimes the higher tax brings such a dramatic reduction in the activity that the total amount of tax receipts generated is lower than it was with a lower tax level. However, this is not a problem because if the activity takes place much less then it will be damaging the Commonwealth less and so depriving members of future generations of less of the Commonwealth they are entitled to, meaning that less money needs to be raised in RIC tax and invested now to mitigate damage to the Commonwealth and compensate them for the damage that does take place. In sum, the RIC tax can always be set at a level such that what members of future generations are deprived of by the amount of the depleting activity that results once the tax is in place is adequately mitigated and compensated for by the revenue raised by the tax.

There are some harms to future generations which would require very high levels of compensation, for example extensive climate change, rising sea levels and shortage of important metals and minerals. Thus activities which do such harm – such as CO_2 production and failing to recycle metals or using them in a way where they cannot be realistically recycled – need to be heavily RIC taxed in order to both sufficiently discourage them and provide adequate compensation.

23 This point is developed in William J. Fitzpatrick, "Climate Change and the Rights of Future Generations: Social Justice Beyond Mutual Advantage", *Environmental Ethics* 29(4) (2007): 369–388.

Sometimes a total ban can be more effectively policed than a very high tax rate (c.f. trade in ivory, the use of CFCs in refrigerators) in which case a ban may be preferable. In further cases an activity may be so potentially harmful that adequately high levels of RIC tax could not be set and/or would send out the wrong message, implying such activity was potentially acceptable and able to be compensated for. In this case, it needs to be banned (e.g. risky new technology used outside the laboratory and new buildings in areas of outstanding natural beauty).

There is a debate to be had regarding how cautious we should be in engaging in activities which may or may not have a detrimental effect on future generations. For example, genetic modification of plants and animals, gene therapy and gene enhancement in humans and the creation of nanotechnology and new viruses. At a more mundane level, consumer products contain an enormous number of useful chemicals most of which however have not been extensively tested. When considering whether to allow the use of a given chemical or new technology, we have to consider whether it might have unforeseen side effects which results in members of future generations being deprived of the Commonwealth that they are entitled to inherit. We are not entitled to put their Commonwealth at risk, merely in order to benefit ourselves. It is clearly in their interests that new technology, chemicals, and so on are only introduced once they have been extensively researched and sufficiently understood. At the same time, these advances may be of worth to members of present and future generations so a balance needs to be struck. There is not space here to explore how this balance should be struck.

The RIC tax is preferable to permit trading schemes. Current permit trading schemes typically involve the government giving away the permits which are then traded between companies. This reduces how much of the natural resource damaging activity (e.g. carbon generating) takes place but does not generate revenue for the government which it can then invest in mitigation of and compensation for the damage done by the activity which still takes place.

Even if the government were to auction the permits or set a price and offer them for sale to all companies and citizens, then this would not necessarily raise the amount needed to provide future generations with adequate compensation (bidding might go too high or too low; permits might not sell out). Furthermore, it would require onerous and expensive state administration both to organise the sales and to track and enforce compliance of companies and citizens. Furthermore, it would impose high administrative costs on all companies and citizens who have to estimate which permits to buy for the year (or quarter or whatever) ahead. Inevitably some companies and citizens end up with permits they do not need which they sell on and others suffer a shortfall so must buy

them on the secondary market which springs up. The resale value of the permits then goes up or down depending on supply and demand, so the whole process ends up being something of a lottery for companies and citizens. Moreover, the direct link is lost between the person engaging in an activity which damages the Commonwealth and that person's paying an amount which provides adequate mitigation of and compensation for that damage.

A permit trading is also difficult to apply to all the different activities which degrade and destroy natural resources (outlined in Section 2). It is particularly impractical when it comes to the activities of individual citizens. Consider petrol use. Most developed countries currently have a tax on petrol. It is easy to administer and to adjust rates. Consumers know where they stand, they can buy what they want when they want and in doing so pay a tax which can be used for mitigation and compensation for the petrol used. Imagine that consumers had to buy permits to use petrol...

The RIC tax provides flexibility, allowing the market (i.e. citizens) to decide whether it is better for the current generation to produce a bit more, doing a bit more damage but paying more for mitigation and compensation so future generations do not lose out; or whether to produce a bit less. Furthermore, in the light of changing activity, circumstances and understanding, the RIC tax can be quickly and easily adjusted. RIC tax is also relatively simple, straightforward and efficient to administer. A good comparison of the government's main options for reducing carbon emissions is offered in the study produced by the Congress of the United States congressional budget office entitled *Policy options for reducing CO_2 emissions* (Feb 2008).[24] It favours a carbon tax. The RIC tax has all the advantages of a carbon tax when it comes to carbon emissions but also addresses the wide range of other ways that the Commonwealth can be degraded and provides the necessary level of funds for mitigation and compensation. Details of RIC tax implementation will be explored in Section 9.

8 Compensation for present and past commonwealth depletion in other countries

This paper's account can work both in a system where there is considered to be one global Commonwealth which every human being equally inherits, and also in a system where the citizens of each nation equally inherit only their nation's

24 C.f. also Wiliam D. Nordhaus, "To Tax or Not to Tax: Alternative Ways of Slowing Global Warming", *Review of Environmental Economics and Policy* 1(1) (2007), pp. 26–44.

Commonwealth. The global level is in many ways the ideal. However, implementation at the global level is some way off. So whilst it is interesting to consider the global level, it is also important to consider the national level, for it is at the national level that campaigners can have more hope of success. Furthermore, there are things to be said in favour of working at the level of nation states rather than globally, as explained in Section 4. The following shows that even in a system where only members of a given nation inherit their nation's Commonwealth, if one engages in an activity which degrades the Commonwealth of another country, then one is obliged to pay for mitigation of, and compensation for, the degradation of that Commonwealth.

Imagine the current carbon emitting activities of some citizens of country C_1 will in future affect the climate of country C_2 in a harmful way – for example reducing rainfall, causing drought, crop failures, and deleterious effects on natural flora and fauna. Those citizens of C_1 will deprive citizens of C_2, of the Commonwealth that they are entitled to. Future generations inhabiting C_2 are as entitled to their Commonwealth inheritance as future generations inhabiting C_1. Citizens of C_1 are no more entitled to deprive current and future generations in other countries of their Commonwealth inheritance, than they are to deprive future generations in their own country. Therefore, the aforementioned citizens of C_1 should pay towards projects which will mitigate the damage to the Commonwealth of C_2 and compensate for that which does take place (as usual, in the form of primary goods) to restore the Commonwealth belonging to the present and future citizens of C_2 to a condition which is as useful to them as it would have been had those citizens of C_1 not engaged in their Commonwealth depleting activities. Thus, the government of C_1 should institute a RIC tax to facilitate this. (Of course it might be that an activity does damage to the Commonwealth of both C_1 and C_2 in which case the proceeds have to be invested in ways which ensure members of future generations in both C_1 and C_2 inherit the Commonwealth they are entitled to.) It need not be the case that members of C_1 pay money to C_2, it might rather be that they provide compensation in kind – carbon storage, pollution clean-up, knowledge and technology transfer, supplies of medicines and machines, and so on.

In practice, some cases of members of one country damaging the Commonwealth of another country are easier to prove than others. Chernobyl is a relatively clear case to the extent that the released radiation could be tracked to other countries. Though even in this case the degree and extent of the harm, and thus the compensation required from Russia, is not so black and white. The degree of harm climate change will cause each country in future is not yet fully clear, nor is the extent to which each country is contributing towards it. We can though draw some broad probabilistic conclusion. And, if

the balance of evidence is in favour of thinking that the activity A of members of C_1 is depleting the Commonwealth of C_2 (for example via climate change) then the balance of evidence is in favour of RIC taxing A and investing the money in projects (of mitigation of and compensation for that depletion) which make it likely future generations in C_2 inherit the Commonwealth they are entitled to. Of course, this mitigation and compensation should be engaged in on the condition that if future understanding indicates that the damage to the Commonwealth in C_2 does not take place or was less than predicted or was not in fact done by members of C_1, then the corresponding portion of compensation will be returned. What if the harm turns out to be more than predicted? Well then the following paragraphs are relevant.

What if P_1 (a now deceased resident of C_1) in the past engaged in the set of activities D which taken together reduced the Commonwealth inheritance of current or future people in C_2 (implying D was not, or not adequately, RIC taxed)? Well, that P_1 violated the rights of P_2 (a current resident of C_2) does not make P_3 (a current resident of C_1) guilty of violating the rights of P_2. For example, if 10 years ago, shortly prior to his death, P_1 independently secretly planted a bomb on C_2 which now explodes killing P_2 it is not the case that P_3 harms P_2 nor that he should pay her compensation. This suggests that P_3 does not have to pay compensation for the erosion of the Commonwealth of C_2 by P_1 or other past citizens of C_1.

What though if P_3 is now better off by amount W because of P_1's past activity D (via private bequest or gift from P_1, or via P_1's augmenting of the Commonwealth of C_1)? Well D should have been RIC taxed by amount E to provide compensation for the inhabitants of C_2. As W was produced by D, E should be deducted from it now and used for mitigation and compensation of activity D. An error was made in the past in failing to RIC tax D: this can be rectified by RIC taxing W, being the proceeds of activity D. P_3 will then be left with the remainder, if any.

In such cases the appropriate analogy is not the bomb analogy above. Rather we should imagine the case where P_1 steals S from P_2. P_1 then bequeaths S to P_3 who now possesses it. It is not the case that P_3 is guilty of stealing from P_2, so he does not have to be blamed or punished for the theft. However, he does have to return S to P_2. If he refuses then he is blameworthy, and others should support P_2's attempts to recover what is his.

In sum, even if one inherits the Commonwealth of one's nation, rather than a global Commonwealth, it remains the case that if one engages in activities which deplete the Commonwealth of another country, then one is obliged to fund mitigation of and compensation for that depletion in order to ensure that

future members of that country inherit a Commonwealth that is as useful to them as it would have been had one not engaged in those activities.

Finally, consider the implications for global trade of a world where only some countries levy a RIC tax. In this case, goods imported into a country which levies the RIC tax from a country which does not levy a RIC tax should be charged the same RIC tax at customs as would have been levied on the production of the item had it been produced in the importing country.[25] This sum can then be invested in mitigating and compensating for the damage done to the Commonwealth of each nation in the manufacture of the item.

A more contentious case would be where goods are exported from country C_1 which has the RIC tax to C_2 which does not. If those goods are RIC taxed in C_1 then they simply will not be bought in C_2 because manufacturers there and in other non-RIC tax countries will be able to sell the item in C_2 that much cheaper. Given this, there is no benefit to the Commonwealth through the government of C_1 having a policy of RIC taxing items intended for export to countries without the RIC tax. Because if it does impose the RIC tax on this item then it will not be produced in C_1 (because the manufacturer would know he could not sell it in C_2) but will just be produced in C_2 where no RIC tax is payable anyway. Furthermore, RIC taxing exports intended for C_2 would cause country C_1 to lose out economically – not only on those sales, but due to the fact that manufacturers would henceforth tend to set up plants in non-RIC tax countries. Given this the government of C_1 has no realistic option but to charge no RIC tax, or a substantially reduced rate, on exports to non-RIC tax countries. The only solution is to persuade as many countries as possible to adopt the RIC tax.

9 RIC tax implementation

We have established a philosophical justification for this paper's account, but it is also important to show that it can work in practice. Doing so will clarify further details of the proposed account.

One way that the RIC tax can be implemented in practice is by making purchasers of all items containing non-renewable natural resources pay a deposit which is returned when the item is recycled. If it is not recycled then the deposit is forfeit and added to the RIC tax fund.

25 A similar point is made by James Hansen, *Storms of My Grandchildren* (London: Bloomsbury, 2009), pp. 209–222.

For instance, in Germany most plastic bottles containing drinks have a deposit charged on them, which is returned when the bottle is recycled. This model might be followed for all recyclable goods – from newspapers to cars, mobile phones to clothes. In the case of valuable metals, the amount of deposit returned would be proportional to the amount of metal returned, given that some may have eroded in use. Being realistic we have to look at the amount of resources consumed in implementing such a scheme, and ensure that the benefits outweigh the costs, for each item. Where a deposit scheme is not cost efficient (as for much packaging) and of course where the item is intended to be consumed in use (as in the burning of oil, gas and coal), the RIC tax might be added to the cost of the item on the assumption that the item will not be recycled. This will make consuming material goods generally more expensive.

The arts, humanities and scientific research consume relatively small amounts of natural resources and produce things which are valuable to future generations (e.g. knowledge, understanding, insight, education, progress, and a more ethical and civil society). Thus on balance they usually contribute towards the Commonwealth. Thus they will usually not be liable to RIC tax. In practice, when an individual or company engages in activities which enhance the Commonwealth they might gain RIC tax credits which could then be balanced off against their RIC tax bill. For example, it might be that the final RIC tax bill for a medical research company is zero because whilst its research consumes some natural resources, it also enhances the Commonwealth. In contrast a cosmetics manufacturer typically provides little or no Commonwealth enhancement so pays most or all of its RIC tax bill. Likewise, a company manufacturing non-recyclable packaging from oil and employing heat and electricity generated by burning gas will have a hefty RIC tax bill which it will pass onto its customers in the form of higher prices. In contrast, a company which buys steel and efficiently transforms it into fancy clocks using manual labour and a factory running on solar power, will have a very small day to day RIC tax bill (mainly for metals eroded in the manufacturing process).

It is the person or company performing the Commonwealth depleting activity which pays the RIC tax. Those manufacturers who deplete the Commonwealth more will have higher RIC tax costs, which will be passed on to the consumer in the form of higher prices, making the consumer less likely to buy their products. Thus market pressures will bring about greater efficiency and less Commonwealth depletion from industry.

Note that drilling and mining companies do not own the oil, iron, gold, etc. that they get out of the ground and transport elsewhere. Rather, as stated earlier, these natural resources are equally inherited by all citizens. These companies may rather be viewed as hired by those citizens to extract and transport the oil,

iron, gold, etc. Thus they are analogous to mail services which are employed to pick up and deliver mail. Therefore, these companies are only liable for RIC tax on the oil and other resources they destroy and degrade in the course of extracting and transporting the oil, iron, gold, etc. It is those who subsequently destroy and degrade the oil, iron, gold, etc. through using it in their projects who are liable for RIC tax.

Some of the money raised via the RIC tax will be spent on things which in many countries are currently met through income tax, sales tax, etc. (e.g. the arts, scientific and medical research, education). In this case, taxes such as income tax and sales tax may fall somewhat. Thus the overall tax burden of the economy would not rise too onerously.

Overall the RIC tax would significantly alter the relative costs of various products and services, and thus affect what consumers spend their money on. In addition, as we have seen, the sums raised by the RIC tax would be invested in projects of mitigation and compensation. This will lead to a (healthy) rebalancing of the economy.

Of course, calculating the RIC tax and investing the proceeds will require all sorts of estimations. For example, setting the RIC tax requires estimations of: the extent to which the activity in question erodes the Commonwealth; which activities would most efficiently mitigate this erosion and provide compensation adequate to restore the Commonwealth; and how much tax needs to be levied in order to pay for those activities. However, governments have to make complex estimates all the time and must seek to do their best.[26] Moreover, the injustice done if the chosen RIC tax level turns out to be a bit too high or too low or if the proceeds are not invested optimally, will be less than the injustice done if no RIC tax is instituted. Furthermore new technology will aid in tracking and fairly assigning activities' harms and benefits to the Commonwealth, and thus aid in calculating a fair RIC tax bill.

Each generation should think of the effect it has on members of all generations, not only the next one. For example, were we to pass on to the next generation a Commonwealth as good as ours, but which would make harmful climate change inevitable for subsequent generations, then we would be depriving subsequent generations of the inheritance they are entitled to without depriving the next generation of its entitlement. Therefore it is important that each generation looks as far ahead as it can.

Future generations rely on each generation prior to them playing their part in sustaining and passing on the Commonwealth. As a result one of the main

26 Some ideas for how to proceed in practice can be gleaned from Jing Liu, *Compensating Ecological Damage: Comparative and Economic Observations* (Cambridge: Intersentia, 2013).

things each generation should seek to bequeath the next generation is a well-educated, moral citizenry who will play their part in ensuring generations subsequent to them inherit the Commonwealth that they are entitled to.

10 Transitional arrangements: the RIC tax on previously manufactured goods

In showing that this paper's account is practicable as well as justifiable, it is important to examine the transitional arrangements which would need to be made whilst the RIC tax is introduced. With this in mind, imagine the point in time when the RIC tax is introduced. For example, consider one farmer who owns land plus a wide range of modern farming equipment, and another (perhaps in another country) who owns similar land, but no equipment. If the latter farmer were to buy the same equipment now then he would have to pay substantial RIC tax on it. Once he had done so then we would have two farmers equally well equipped, one of whom had paid RIC tax and one of whom had not. This is hardly fair and equitable. It makes it particularly difficult for new businesses to start up and challenge established businesses. It also offers a windfall to owners of property. For instance, if Petula bought a car for £20,000 yesterday and today the RIC tax is introduced adding £5,000 to the car's price, she can now sell the car for far more than she paid for it, making a big profit without having done anything to earn it.

It follows that the RIC tax needs to be applied retrospectively, so that those who possess similar goods (e.g. a tractor) the manufacture of which similarly depleted the Commonwealth pay similarly for mitigation and compensation. Therefore when the RIC tax is brought in those individuals and businesses who already privately own things the production of which depleted the Commonwealth but on which no RIC tax was paid are liable for the same RIC tax as they would be liable for if those things were produced now. This measure creates a level playing field and generates funds which can be invested in mitigation and compensation to ensure the Commonwealth is of no less worth than if the depleting activity which produced those things had not taken place. It is those who enjoy the fruits of that past Commonwealth depleting activity (i.e. now own the thing produced in the past) who have to pay the RIC tax on it. Otherwise the owner gains through the wronging of members of future generations.

Citizens can usually complain of retrospective taxation that it is unfair because they might not have engaged in the activities in question had the

taxation been in place. However, in this case this argument can be rebutted in two ways.

First, if one wrongs someone then one should rectify this wrong. Degrading the Commonwealth wrongs future citizens. So one should pay the RIC tax in order to rectify that wrong. It is no defence (no justification for refusing to pay compensation) to say that you would not have wronged them if you knew that you would have to compensate them for wronging them!

Second, the owner of an object on which the RIC tax is liable can always sell it, or give it away, so the RIC tax falls on the new owner. In this case, they can simply be said to have been able to enjoy the thing for a period of time without having paid the RIC tax which should have been paid, so have not unfairly lost out with the introduction of the RIC tax.

What if no-one judged it worth paying the RIC tax on a certain item, so it became ownerless, and was wastefully and pointlessly destroyed? For example, take a mediocre 20-year-old tractor driven by a small-scale farmer. The tractor would have a high RIC tax slapped on it due to the large amount of natural resources consumed in manufacturing it. Perhaps neither the individual nor anyone else would think the tractor worth this amount. So it would be scrapped, leaving the farmer either without the tractor, so farming less efficiently (to no one's benefit), or buying a new one which depletes lots of natural resources in its manufacture.

The solution would be to make the RIC tax due proportional both to the resource depletion which took place in manufacturing the item and the current value of the item. It would also help if the retrospective RIC tax were to be staggered over a number of years so that there was not one large unexpected tax due on the item. In practice, various generalisations and exceptions would need to be made in order to avoid unnecessary bureaucracy. Nevertheless such a system would be workable and fair, with the retrospective RIC tax being higher for those with more goods.

This reasoning can be extended to paper wealth (bank balances, shares and so on) in cases where this has been generated by activities which depleted the Commonwealth. For example, take a retired American chemicals manufacturer with a million dollars in the bank (or equally, the son of an American chemicals manufacturer from whom he inherited that million dollars), and a penniless youth with nothing. Were the youth now to engage in manufacturing activities similar to those undertaken by the retired American, and generate similar income, then she would have to pay significant RIC tax on that activity. It is unfair that of two people who earn a million pounds from the same manufacturing process, the production of which did equal harm to the environment, one should have to pay RIC tax on that money and the other not. Therefore, it seems

reasonable that those with paper wealth should – if they wish to retain that wealth – pay compensation to future generations for any depletion of the Commonwealth caused by those activities which generated that paper wealth.

Naturally, the retrospective RIC tax could not be applied equally to all deposits of wealth, because there is clearly more RIC tax due on the wealth generated by the non-recyclable packaging manufacturer than on that generated by the farmer, who in turn is liable for more RIC tax than writers, artists and researchers. As with calculating current RIC tax, in calculating the total retrospective RIC tax due on the activity of an individual or company one must take into account both any erosion of Commonwealth (e.g. through consuming natural resources) and any enhancements to the Commonwealth (e.g. through producing useful inventions, inspiring arts or a better educated populace).

Furthermore, note that the retrospective RIC tax due on paper wealth will be reduced by any retrospective RIC tax paid by the current owners of things the production and sale of which generated that paper wealth. So for instance, there might be no such reduction for the manufacturer of chemicals, whose chemicals have all be used and dispersed; but for the machine tool manufacturer many of whose machine tools are still in use, and upon which retrospective RIC tax may be levied, his final bill will be reduced by the sum raised. The aim being that the total RIC tax raised is sufficient to mitigate and compensate for that manufacturing activity.

In practice, it would be quite difficult, and costly in terms of bureaucracy, for government to document each person and company's current possessions and appropriately retrospectively RIC tax them – and even more difficult to trace current paper wealth back to past wealth generating activities in order to RIC tax them. Whether a fair and cost-efficient generalising and approximating strategy could be developed is moot. Perhaps only those with over a certain level of wealth could be cost-effectively investigated and retrospectively RIC taxed. Certainly, a retrospective RIC tax would prove more politically unpopular than a RIC tax on current activities: people always particularly resent having something taken from them which they already have in their grasp. Thus, in practice politicians and campaigners might have to make do with introducing only the RIC tax on current activities. Though if it was only the better off who were retrospectively RIC taxed then politicians in democracies might be able to institute this measure alongside the RIC tax on current activities.

Whether or not the retrospective RIC tax was introduced, there would need to be transitional arrangements for the introduction of the tax on land and other scarce natural resources. This tax will cause a dramatic fall in the sale and rental value of land and other scarce natural resources. This would leave those who happen to hold their wealth in such items much worse off than those whose

wealth is tied up in other things, through no fault of their own. This loss should be compensated, perhaps using a one-off levy on all wealth, so the loss is spread evenly.

11 A suitable set of property rights

Nowadays in the philosophy of property it is commonly thought that what it is to have full ownership of something can be described in terms of having a bundle of rights in it. Gerald Gaus[27] states the set of standard "incidents" thus:

> Drawing on the classic analysis of A. M. Honoré, let us say that a person (Alf) has full ownership of X if Alf has[28]
>
> (1) *Right of Use*: Alf has a right to use X, that is,
> (a) Alf has a liberty to use X, and
> (b) Alf has a claim on others to refrain from use of X.
> (2) *Right of Exclusion* (or possession): Others may use X if and only if Alf consents, that is,
> (a) If Alf consents others have a liberty to use X;
> (b) If Alf does not consent others have a duty not to use X.
> (3) *Right to Compensation*: If someone damages or uses X without Alf's consent, then Alf has a right to compensation from that person.
> (4) *Rights to Destroy, Waste, or Modify*: Alf has a liberty to destroy X, waste it, or change it.
> (5) *Right to Income*: Alf has a claim to the financial benefits of forgoing his own use of X and letting someone else use it.
> (6) *Absence of Term*: Alf's rights over X are of indefinite duration.
> (7) *Liability to Execution*: X may be taken away from Alf for repayment of a debt.
> (8) *Power of Transfer*: Alf may permanently transfer (1)–(7) to specific persons by consent.

Something like this set of property rights has been accepted for centuries. All the main accounts of political philosophy accept and work with it. They differ only in what rules they add on to it – particularly rules specifying when an individual takes possession of something (e.g. does the individual own whatever he produces, none or only a percentage thereof) and when the state may take something from him by force (e.g. via taxation, levies, fines or compulsory purchase). These rights are pervasive, providing underlying regulation of much human

27 Gerald Gaus, "Property", in *The Oxford Handbook of Political Philosophy*, ed. David Estlund (Oxford: Oxford University Press, 2012), pp. 93–112.

28 A. M. Honoré, "Ownership", in *Oxford Essays in Jurisprudence*, ed. A. G. Guest (Oxford: Clarendon Press, 1961), pp. 107–147. See also Lawrence C. Becker, *Property Rights: Philosophical Foundations* (London: Routledge & Kegan Paul, 1977), chap. 2; James O. Gruenbaum, *Private Ownership* (London: Routledge and Kegan Paul, 1987), chap. 1.

interaction. Thus which set of property rights we institute is extremely important.

Significantly, the account put forward in this paper indicates the foregoing set of property rights requires modification. Let us start with right 4. This paper's argument shows that an individual can only hold right 4 in things which are not part of the Commonwealth. This means that right 4 can only be held in the embodied labour component of articles of private property. With regards to elements of the Commonwealth, Right 4 in Gaus's list needs to be replaced by the **Substitution Right**. This can be defined as follows:

> (4*) *Substitution Right*: Alf has a liberty to do action D which depletes the Commonwealth provided that he pays a sum sufficient to (fund projects which mitigate damage to the Commonwealth and projects which compensate for damage to the Commonwealth and thereby) ensure that future generations inherit a Commonwealth at least as useful to them as that which they would have inherited had he not done D.

In other words, 4* is the right to substitute one element of the Commonwealth with another which will be of equal or greater use to members of future generations. It follows that if you own an item of private property then you commonly have Right 4 to the labour which is embodied in the object, coupled with the Substitution Right 4* to the natural resources from which the item is made. As we saw earlier, destruction and degradation of certain elements of the Commonwealth (such as a liveable climate, sufficient farmable land and natural beauty) cannot be adequately compensated for, so with regards to them no one will hold either right 4 or 4*.

Joseph L Sax argues that owners of important artworks, historical artefacts and buildings should not have Right 4 in them.[29] Edward J. McCaffery argues for further laws against waste and destruction.[30] These proposals cannot be considered here. However, if it were concluded that there should be such laws, then these could easily be grafted on to the measures proposed in this essay.

Based on the discussion of Section 3, we can also postulate that each currently living member of a given nation (or the world) has a **Commonwealth Freehold Right** to an equal share of the extant Commonwealth of that nation (or the world). This means he holds rights 3, 5 and 6 (from Gaus's list) in an equal share of the Commonwealth. As he holds

29 Joseph L. Sax, *Playing Darts with a Rembrandt: Public and Private Rights in Cultural Treasures* (Ann Arbor: University of Michigan Press, 2001).

30 Edward J. McCaffery, "Must We Have the Right to Waste?" in *New Essays in Legal and Philosophical Theory of Property*, ed. Steven Munzer (Cambridge: Cambridge University Press, 2012).

right 3, if someone degrades the Commonwealth then she must pay compensation sufficient to restore the Commonwealth to being at least as useful to him as it was prior to the degradation, as discussed earlier. As he holds right 5 he can lease out the land and scarce resources (as we saw earlier, this will in practice mean the state implements a land tax, etc.). As he holds right 6 he holds the Commonwealth Freehold Right for as long as he lives though he cannot bequeath it.

Whether the Commonwealth Freehold Right holder should also be held to be subject to right 7 is debatable. Certainly the income he derives from the rent on his portion of the Commonwealth could be taken away for repayment of a debt, so it makes no difference in practice whether he is taken to be subject to right 7 or not. As for right 8, he could now in exchange for a capital sum sign over the future income stream he will receive from his Commonwealth Freehold Right. However, his Commonwealth Freehold Right terminates on his death, so he cannot transfer ownership of his portion of the Commonwealth to someone else.

Consider now that for the economy to work efficiently citizens need to know that they can have ongoing use of land and certain bits of natural resources. No one will build on a plot of land if that land, and/or those bricks, may at any time be taken from them. Therefore, let us now introduce the status of **Steward**. Someone who is a Steward of an element of the Commonwealth "R" (such as natural resources or artworks) typically holds all the rights in Gaus's list apart from 4 and 6. Instead of right 4 he may hold right 4* and instead of right 6 he holds the following right:

> 6*: *Conditional Term*: Alf's rights over X last for as long as he pays the appropriate rent, if any, to the holders of the Commonwealth Freehold Right.

Thus the Steward of R has the right to enjoy, use, control, exclude others and transfer R to others for so long as he pays any rent owed to the persons who hold the Commonwealth Freehold Right to R. As we have seen, in practice this means for as long as he pays the land possession tax, the gold possession tax, or whatever. Failure to pay any sums owed results in the Stewardship being revoked. Recall though that there might not currently be any rent payable by the Steward of things which are common such as steel, water and coal, only RIC tax on their destruction or degradation (though it would still be right 6* rather than right 6 which individuals hold in them, for this then gives the state the right to implement a possession tax in future if necessary).

The Steward may or may not hold right 4* in R – if he does not hold it then he may not destroy or degrade R. For example, commonly a farmer is the Steward of his land, so the land is his to farm, rather than anybody else's. He

holds right 6* in the land so in order to retain his Stewardship he must pay rent (i.e. land possession tax) to those with the Commonwealth Freehold Rights (i.e. all citizens, via the state). He will usually not hold the Substitution Right 4* in the land – in which case he is not entitled to destroy or degrade it. If he wishes to have Right 4* in the land then he would have to apply to the state for it. For instance, if he wishes to build a house on his farmland he will need to petition the state to grant him right 4* in the land because the land will be degraded by his building on it. Whether the state grants this request will depend on multiple factors, including of course planning laws. But even if the state grants him right 4* it might simultaneously mandate only house building on the land, so he would not be entitled to dispose of chemicals or waste on the land, for instance, which would be far more degrading of the land. And if he is granted permission and goes ahead and builds on the land then he will have to pay the resulting RIC tax.

Typically objects in private ownership (e.g. a gold ring, a machine, a house) contain a mixture of natural resources and embodied labour. For example, consider a gold ring. The individual may be Steward of the natural resources (e.g. the gold) so hold right 6* in them; and he may also hold the Substitution Right 4* in them; and be full owner of the embodied labour (which transformed the gold nugget into a ring) so hold right 4 in that. As a result, he may at will destroy the embodied labour by smelting the ring back into a nugget; but he can only destroy or degrade the gold (e.g. by dispersing or oxidizing it) upon payment of the relevant RIC tax.

There is much debate in the literature about the "fragmentation" of property rights,[31] meaning that for many pieces of property one person does not have the full set of rights 1–8. For example Gaus points out that,

> One may sell his right to live in the house (rent it), put it in trust (in which case the trustee does not have the right to use it uneconomically), sign over to a historic commission the right to change the exterior, agree to a covenant with one's neighbours about acceptable exterior colors, and agree not to sell it to parties not approved by one's neighborhood association. On the other hand there may be a law that does not allow you to refuse transfer on the basis of race; it may be mortgaged, in which case it may not be able to be taken in payment of debt, and one may not have the right to destroy the house. If there are zoning laws there are many uses that are precluded... If there are building codes, many changes may be illegal.[32]

31 The *locus classicus* is John Gray, *Liberalism* (Milton Keynes: Open University Press, 1986), esp. chap. 8.

32 Gaus *ibid*.

Things will be similar with regards to Stewardship. The Stewardship can be sold, gifted or bequeathed to others. The Steward can sublet R or mortgage R, and so on. Thus being a Steward of something is quite similar to being its full owner. The difference is that the Stewardship only persists as long as the rent due is paid (c.f. Right 6*), and that being the Steward of R does not in itself entitle the holder to destroy or degrade R. As we have seen, to destroy or degrade R he must also hold the Substitution Right 4* – which the state decides whether to accord him – and pay the relevant RIC tax.

The cost of buying the stewardship of land and other scarce natural resources would be much lower than the current purchase cost of those things, reflecting the burden of the land and scarce natural resource possession tax. Recall that the land possession tax is identical to the market rent that the unimproved land would command in the absence of the land possession tax. This means that purchasing the Stewardship of unimproved land will be cheap or free. Notwithstanding this, if the land is improved in some ways – e.g. drained, irrigated, levelled and fertilised, so that it is more productive than previously – then it can command a higher purchase price (for then in purchasing the Stewardship of the land one is simultaneously becoming owner of the labour embodied in the land).

For example, imagine Ethel buys the Stewardship of a farm from the current Steward, George. Ethel will primarily be paying for the embodied labour tied up in it – the improvements to the land, the farm buildings, and so on. The land will come with right 6* and if George also has right 4* in the land that will also transfer to Ethel – but if he does not have it then neither will she (though as mentioned above, she can subsequently petition the state to acquire it). If George has right 4 in the labour embodied in the farm buildings then so will Ethel – so she would be free to modify or demolish them.[33]

Taking another example, if Gloria buys a gallon of oil from BP then she acquires from it the Stewardship of that gallon of oil. That Stewardship will come with rights 4* and 6* but as oil is not (at present) scarce there is no rent/tax due on possession of it. In purchasing the oil Gloria is paying BP for the labour of extracting, refining and transporting the oil. The Commonwealth Freehold Right in the oil is held by all citizens. Gloria can only burn the oil in her lamp on condition she pays the RIC tax.

Finally, it will be helpful to postulate an **Enjoyment Right** to R, this being a non-exclusive right to enjoy R. This will include the right to look at and listen to

33 Planning laws may limit building and add a scarcity value to buildings – this added value is not something the building's owner produced through his labour and ingenuity, therefore it is not something from which he is entitled to benefit financially. Thus a tax may be levied on the "planning gain" and shared amongst all citizens.

R. Thus all human beings might be thought to have an Enjoyment Right to look at the sun and sky, breathe the air, listen to the wind and birds, and so on. It may include (depending on R) the right to interact with R in some ways. For example, all residents in the UK have an Enjoyment Right to walk in the National Parks, swim in the sea, and so on. Enjoyment Rights are usually tied to those items in the Commonwealth which are irreplaceable and non-substitutable.

Thus whereas Stewardships are exclusive (if I have Stewardship of this bit of land, then you do not) Enjoyment Rights are shared (we both have the Enjoyment Right to look at the sun and walk in this National Park). It may though be that you have the Stewardship of this stretch of the Scottish Highlands so are allowed to graze sheep on it, but do not have rights 4 or 4* nor the right of exclusion (2 in Gaus's list) so are unable to curtail my Enjoyment Right to walk on it, picnic on it, etc...

In conclusion, we have established that members of future generations are entitled to inherit a Commonwealth which is as useful to them as the Commonwealth of the current generation would be. Therefore, if an individual today engages in an activity that will reduce future generations' inheritance of natural resources and/or of the non-natural resource component of the Commonwealth, then he should invest in projects which mitigate damage to the Commonwealth and compensate members of future generations for any damage that he does cause. Governments can facilitate this by imposing a tax on Commonwealth depleting activities, the proceeds of which are invested in schemes of mitigation and compensation. Finally, we saw that such a system needs to be underpinned by the revised set of property rights outlined above.

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