Had we but world enough, and time: integrating ecological and temporal perspectives on global justice

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Introduction

There are dramatic inequalities globally. Within political theory there are different views on whether or how this might be a matter of injustice. In this paper we focus on an aspect of inequality that involves people being advantaged or disadvantaged in relation to each other. We take one party to be advantaged in relation to another if the one enjoys a net balance of benefits over burdens arising from a common set of circumstances while the other bears a net balance of burdens over benefits. We do not assume that one party being advantaged over another is in itself necessarily unjust, for we do not assume that any kind of inequality is necessarily unjust. The only standard of justice we assume relates to the threshold of a ‘morality of the depths’ (Shue 1996). Thus the kind of situation we do consider presumptively to require redress as a matter of justice is one of common circumstances in which some people have less than sufficient access to the means for a decent life while others have more than enough. In what follows we contribute to a framing of those circumstances that focuses the question of justice in a distinctive way.

Here we do not attempt to specify in close particulars the sufficient conditions for a decent life, but what we shall do is emphasise that these come in two overarching sets in literally different dimensions. On the one hand, there is a need for the resources that exist in space – or, more exactly, in what may be described as ecological space; on the other hand there is the need to be able to experience life as a conscious and autonomous agent, and this is something that occurs in the dimension of time. So when we speak of sufficient access to the means of a minimally decent life we understand these not only in terms of the ecological space that furnishes our material requirements but also in terms of the comparably neglected matter of human time. However, we do not assume that there is some way of saying if or when a person has sufficient time, and we do not assume time is plausibly regarded as a ‘metric’ or ‘currency’ of justice; rather, by analysing the different ways in
which time is important for the quality of a life, and, indeed, constitutive for the experience of life at all, we show how the framing of questions of global justice can be enriched with its inclusion.

In order to determine how time can be integrated in the analysis of relations of advantage and disadvantage, we start, in Section 1, by considering the account provided by Alf Hornborg of how economic exchanges can be unequal between societies globally\(^1\) in the two distinct dimensions of human time and ecological space.\(^2\) We supplement this account with the conceptualisation by David Harvey of how the territorial logic of that unequal exchange relates to the distinct capitalist logic of accumulation in order to understand how inequalities of global classes do not map onto those between nation societies.

Because the question of how the concept of ecological space can be integrated into a theory of global justice has already been examined at length in previous work, we focus in Section 2 on the further idea that global inequality manifests what might be regarded as ‘temporal debt’, an injustice with respect to time justice. We show that there are at least three distinctive ways in which disadvantage or exploitation can be perpetrated in the dimension of time. In Section 3 we then show how those three concepts of disadvantage in time

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\(^1\) We are aware that the very idea of ‘unequal exchange’ is one that mainstream economists are liable to dismiss as something approaching an oxymoron since, on the basis of standard assumptions, any exchange represents a deal that improves the position of both sides, else they would not agree to it, and thus cannot be called unequal in any pejorative sense. Yet it is perfectly possible for two parties to strike a deal that, while freely agreed, does not merit being described as equal in any ethically significant sense. For instance, if A is a powerful monopoly buyer and B is a poor subsistence producer, A can force down B’s prices by simply refusing to buy until B drops his price, which B may have to do on the grounds that selling cheap is less bad than not selling at all. A has thereby used one set of advantages (a monopoly position, alternative buying options, and wealth) to hold out doing business for a time altogether thereby to wrest a further advantage over a party who starts out from a position of disadvantage. If a given economic frame of analysis does not allow the perception of any problem here, then we would commend amending that frame. In the context of this paper, in any case, the unequal exchange in question relates to objective measurables and so the mainstream economists’ strictures would not really apply at all.

\(^2\) Hornborg uses the term ‘natural space’, but we go with the term ecological space for reasons set out in work by Hayward (e.g. 2013, 2014). With the renaming we do not intend any amendment of Hornborg’s argument.
broadly correspond with the three basic rights identified by Henry Shue (1996) as constituting the ‘morality of the depths’ – the threshold one’s sinking below which would trigger a requirement of justice to redress. This enables us to show how the characterisation of unequal exchange offered at the outset can be presented as a properly normative description of exploitative relations, requiring only that we assume the validity of those most basic claims of morality. In Section 4 we explain how the ecological and temporal perspectives may be integrated in understanding the requirements of global justice. These two sections show that the three types of temporal debt can be mapped onto both an established understanding of basic human rights and a schema of normative relations in the use, occupation and command of ecological space. This provides an enhanced conceptual framework within which to grasp what global justice means today.

1. Non-normative background theory: a dynamic account of global inequalities

In this section we consider how Hornborg’s explanatory account may provide the basis for an elaboration of a normative account of the injustice of compound advantage taking. In doing so, we also take into account the inter-class flow of economic power under the global system, since Hornborg’s analysis mainly concerns the inter-societal relations under the system.

In his analysis of ‘unequal exchange of time and space’ (Hornborg 2003; 2013: chapters 5 and 6; cf. also 2001: chapter 3), Hornborg discusses two dimensions of exploitation: human time (in the form of labour) and ecological space. For Hornborg, human time and ecological space are two forms of ‘productive potential’ (2003: 4R-6L), or ‘exergy’ in his terminology (2001: 42). In this sense, we understand them as two sources of social wealth, wealth of the substantial kind that is potentially conducive to human well-being. According to the
understanding of mainstream economists, there is no way that the exchange of such socially productive resources can be thought of as ‘unequal’ as long as it is conducted on the basis of parties’ free agreement and price is understood to be the value defined by neutral market forces. Contrary to them, however, Hornborg explains that through the inter-societal exchange of hours of labour (human time), on the one hand, and access to raw materials, energy, hectares of land/water and waste sinks (ecological space), on the other, affluent industrialised societies gain ever greater command over these socially productive resources while poor underdeveloped societies are, to that extent, left with less development potential.

In order to explicate this process, Hornborg draws on the entropic analysis of ecological economist Nicholas Georgescu-Roegen (1975). Entropy is an index of disorder and (un)available energy: higher entropy means greater disorder and lower productive potential/ exergy, while lower entropy means greater order and higher productive potential/ exergy. 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. Production processes are subject to the law of entropy, or the Second Law of Thermodynamics, and therefore finished commodities/products represent an increase in entropy and disorder, compared to the resources they are produced from. Accordingly, what appears to be the ‘investment’ of human time and ecological space from the economic perspective is actually, from the material perspective, the ‘dissipation’ of energy and order because the part of these productive potentials that has been dissipated through production processes cannot be employed again. Hornborg claims that the industrialised economies of affluent societies, characterised by their ‘dissipative structures’ (2001: 42-3), have been able to remain (at least seemingly) immune to such inevitable consequences of entropic degradation as
stagnated growth and environmental degradation because they maintain their internal order by ‘inhaling’ the low-entropy high-exergy matter-energy from and ‘exhaling’ the high-entropy low-exergy matter-energy (industrial commodities and waste), into underdeveloped parts of the world.

Hornborg also explains why the inter-societal exchange of human time and ecological space inevitably becomes exploitative under the existing global trade system (the institution of market exchange) where the price of finished products does not reflect an evaluation of what it would take to restore the original productive potential that has been dissipated through production processes. According to him, the value represented by price is defined by ‘the cultural preferences of consumers’ (2003: 6L), and thus ‘there is no specifiable relation between the amount of productive potential that has been invested in a commodity and the way it will be evaluated on the market’ (2003: 5R-6L). Having admitted this, however, Hornborg continues to explain that, longitudinally along the transformation of resources to industrial commodities/products, there is, in very general terms, an inverse correlation between price and productive potential (2003: 6L): the higher entropy and the greater disorder products/commodities generate through their production processes and the lower productive potential is left in them, the greater utility, and thus the higher market price, they gain. This is a corollary to ‘the juxtaposition of the Second Law of Thermodynamics and the social institution of market exchange’ (2003: 6L). He explains:

If industrial processes necessarily entail a degradation of energy ... the sum of products exported from an industrial center must contain less exergy than the sum of its imports. But in order to stay in business, of course, every industrialist will have to be paid more money for his products than he spends on fuels and raw materials. At an aggregated level, then, this means that the more resources that have been dissipated by industry today, the more new resources it will be able to purchase tomorrow. (2001: 45)
Although only ‘fuels and raw materials’ – i.e. resources from ecological space – are mentioned in this quotation, Hornborg’s intention is to include labour time – or what he calls ‘human energy’ (cf. 2013: 38) – into his gauge of exergy (2003: 7L-R). So, to sum up, as an inevitable consequence of the entropy law and market exchange, ‘industrial centers exporting high-utility commodities will automatically gain access to ever greater amounts of available energy from their hinterlands’ (2003: 6R), while those ‘hinterlands’ that are more directly involved in resource extraction, on the other side of the story, are exploited both as sources of exergy (human time and ecological space) and as sinks of entropy (industrial commodities and valueless waste).

Although Hornborg’s concern is to explicate the exploitative mechanism behind the inter-societal exchange of human time and ecological space (between affluent societies and poor societies), we believe that his analysis at the inter-societal level is instructive for us to understand the dynamic mechanism that lies behind the exploitative inter-class relationship between the affluent population in the globe (the Global Affluent) and the poor population in the globe (the Global Poor). For this inter-class analysis, we need also to consider, as David Harvey emphasises, how ‘economic power flows across and through space, toward or away from territories’ (Harvey 2005: 91, our emphasis). The factors that influence this inter-class flow of economic power include: the ‘capitalist logic’ of global capital accumulation; the relationship between capitalists and workers; and the cooperative schemes that function within the domestic sphere of affluent societies.

First, then, as Harvey (2005: 91-2) argues, two distinct (but intertwined) logics are functioning behind the process of global capital accumulation – namely, a territorial logic and a capitalist logic. Under the territorial logic, on the one hand, those who are governing a society are responsible to its citizens (or, more narrowly, to the social elite who are in positions to influence them) and seek collective advantage that is supposed to serve the
interests of the society as a whole. Following this logic, (powerful) societies strive to ‘take advantage of the asymmetries that arise out of spatial exchange relations’ (92), the result of which is the prevalent occurrence of the unequal inter-societal exchange of socially productive resources (namely, ecological space and human time). Under the capitalist logic, on the other hand, capitalists ‘place money wherever profits can be had’ because they ‘seek individual advantage and are responsible to no one except themselves and (to some degree) shareholders’ (91). Following this logic, the economic power to command the productive infrastructure accumulated through the inter-societal exchange transcends the territorial borders of societies and concentrates into the hands of capitalists, who can be referred to as the ‘Global Affluent’.

Secondly, while some workers share in the advantages that follow the capitalist logic, a majority globally is marginalised by them. The majority of workers in affluent societies can be seen as beneficiaries of their relations with capitalists, since they are earning modest economic power in the form of comfortable income through those relations, and with that power, enjoying the fruits of labour and ecological space exchanged under the global trade system. Meanwhile, the majority of workers in poor societies who are earning a fraction of our income seem to lack such economic power. Accordingly, the majority of workers in affluent societies can be classified as the ‘Global Affluent’, while the majority of workers in poor societies can be classified as the ‘Global Poor’.

The third factor that influences the inter-class flow of economic power is the nature of the cooperative scheme that operates within the domestic sphere of affluent societies. Affluent societies normally have corrective mechanisms – such as do not exist globally – through which to redistribute wealth so as to safeguard the marginalised groups of people in their jurisdiction against the dire effects of poverty (cf. Hornborg 2013: 58-9). Through such mechanisms, those who might be classified as the ‘poor’ in affluent societies obtain at least
minimal access to the fruits of labour and ecological space exchanged under the existing
global system.

In view of these factors, it can be argued that the existing global trade system exhibits these
two features: unequal exchange of human time and ecological space at the *inter-societal*
level that works in favour of affluent societies; and the *inter-class* flow of economic power
(i.e. power to enjoy the fruits of labour and ecological space exchanged or to command the
productive infrastructure accumulated through that exchange) that works in favour of the
Global Affluent.

At the *inter-societal* level, on the one hand, affluent societies are, through exchange,
depriving underdeveloped societies of the two socially productive factors, namely human
time and ecological space, and thereby causally contributing to the underdevelopment and
related poverty in the latter societies. Also, the deprivation of ecological space by affluent
societies is running faster than can be recovered or assimilated by the biocapacity of the
earth. Through this exchange, in short, underdeveloped societies are left with intractable
economic and ecological problems, while affluent societies are enabled to accumulate their
productive economic infrastructure.

At the *inter-class* level, on the other hand, those who are ultimately benefiting from and
being advantaged through this inter-societal exchange are the Global Affluent who include
both (the majority of) those in affluent societies, and the social elite in underdeveloped
societies who are benefiting from this process. With their economic power to enjoy the
benefits of the unequal exchange of time and space highlighted above, they achieve both a
high level of material affluence and extensive freedom with regard to the use of time.
Meanwhile, those who are socio-economically or ecologically marginalised through this
exchange are the Global Poor. Because, in such positions, their time may have to be
devoted almost exclusively to securing basic access to the material means of life, we can understand marginalisation and disadvantage also in terms of the deprivation of temporal freedom.

There is thus good reason to take both the ecological and the time perspectives when aiming to understand how global relations can be exploitative and unjust. The ecological perspective on the circumstances of global ecological-material injustices has been explored elsewhere (e.g. Hayward 2006, 2008, 2009). In the following section, therefore, let us focus on the time perspective in order to conceptualise the circumstances of global time injustices.

2. Three categories of global time injustices

In conceptualising relations of inequality, a relevant focus is on the differences in well-being and opportunities that flow from material circumstances as measurable not only in terms of differential access to ecological space but also in terms of the amount of necessarily non-discretionary time required to use that access sufficiently to support a minimally decent human life.

We shall highlight three broad categories of global time injustices in which we, the Global Affluent, are thought to be involved. They indicate the possibility that the Global Affluent are gaining the current level of development and (at least apparent) immunity to ecological problems, on the one hand, and a considerable degree of temporal autonomy, on the other, at the expense of the human (labour) time of the Global Poor, and that the Global Poor, meanwhile, tend to get marginalised into such a socio-economic position where, in order to meet their basic material needs for a minimally decent human life, they need to spend a long time of labour to produce the goods and services they themselves cannot afford to
enjoy, only to make a meagre living. A more general claim that shall follow our discussion in this section is that the time perspective (along with the ecological perspective) may be necessary for us to grasp a fuller picture of the current circumstances of global injustices.

(a) Deprivation of a source of social wealth: Two sources of social wealth that are potentially conducive to the end of human well-being (e.g. continued life, bodily health, bodily integrity, etc.) are ecological space (raw materials, energy, hectares of land/water, and waste sinks) and human (labour) time. Not only ecological space but also the human time spent in the form of labour (or to speak of the quality rather than the quantity, the productive power of humans) should be regarded as a potential source of social wealth because, in most cases, ecological space does not spontaneously produce the items and material conditions conducive to human well-being. Only through human labour do hectares of land, pieces of timber, or medical herbs produce agricultural crops, shelters, or essential medicines, i.e. the items conducive to the continued life, bodily health and bodily integrity of individual human beings.

As Hornborg’s analysis of the flow of the socially productive matter/energy (which is potentially conducive to human well-being) reveals, the inter-societal exchange of ecological space and human time between industrialised affluent societies and underdeveloped societies seems to be governed by the dynamic mechanism through which the former gain ever greater access to such resources while the latter are left with intractable economic and ecological problems. The ultimate beneficiaries of this exchange process are the Global Affluent who have been accumulating their power to use/occupy/command the socially productive resources through the exchange. They are enjoying both the benefits of the wealth that ecological space provides and the extensive freedom with regard to the use of time, at the expense of the secure access to ecological space and human/labour time of the Global Poor. Meanwhile, the Global Poor are either/both excluded from the benefits of the
wealth that ecological space provides, or/and exploited as sources of cheap and excessive labour and thus unable to enjoy such extensive freedom with regard to the use of time as the Global Affluent do. In short, the social/economic relationship between the affluent population and the poor population under the existing global (trade) system seems to be governed by the dynamic mechanism through which the former group of people gain ever greater access to the finite productive matter-energy (i.e. labour and ecological space) while the latter group of people are left with less than needed to meet their basic material needs even for a minimally decent human life.

To the extent that we are the beneficiaries of the exploitation of one of the two potential sources of social wealth – namely, human (labour) time – we are involved in global time injustices.

(b) Deprivation of temporal autonomy: Besides the social/economic aspect as a socially productive factor (i.e. as a potential source of social wealth), human time has another important – personal – aspect as the temporal context within which the individual autonomous life is led. ‘Autonomy’ – the human capacity to choose one’s path through life in accordance with his/her own life plans, projects or goals – is an important moral value, not simply because the empirical evidence shows that many people actually desire to lead an autonomous life (cf. Peterson 1999; Veenhoven 1999), but also because the possibility of doing so allows humans to develop and reflexively apply their highest emergent faculties and capacities. Therefore, societies should not suppress such fundamental human capacities but aim at supporting a state of affairs in which individuals can lead an autonomous life that allows their full unfolding. Time has an important implication for this central human value of autonomy and the capacities of practical reasoning. As Robert Goodin (2010: 1-2; see also Goodin et al 2008: 27-36) points out, human time constitutes the context within which individuals exercise their autonomy, and therefore, a certain
amount of time over which one has discretionary control should be guaranteed in order for him/her to lead a (minimally decent) autonomous life. In Goodin’s words, ‘whatever plans or projects one might care to pursue, without time to devote to them an absolutely essential input would be missing’ (Goodin 2010: 2). In short, those who are substantially (or even completely) deprived of such discretionary control over the use of time can be said to lack an important aspect of autonomy – i.e. ‘temporal autonomy’, in Goodin’s terminology.

As described in category (a) of time injustice, the Global Affluent seem to be gaining under the global system an ever greater level of material affluence and temporal autonomy at the expense of the secure access to ecological space and labour time of the Global Poor, while the Global Poor are left without a sufficient amount of material means for subsistence (referring not simply to sufficient income earned through labour, but more fundamentally to secure access to ecological space, which sufficient income is only one way to achieve). The lack of material means to support subsistence means that one needs to devote extra time to trying to eke out any material means of subsistence to stay alive: the more material means of subsistence one has, the more time one is able to devote to other activities than just earning necessities of subsistence, while the less material means of subsistence one has, the more time one needs to devote to trying to eke out any kind of living. The upshot of this is that if one is materially disadvantaged either by being exploited as a source of cheap (and long) labour and thereby left without sufficient income (or without sufficient access to ecological space), or by being deprived in any other way of secure access to ecological space adequate for subsistence, then he/she is temporally disadvantaged too, because they have to devote extra time to trying to stay alive and thus are left without a decent level of temporal autonomy. Accordingly, to the extent that the Global Affluent are allowed to gain a considerable degree of material affluence and temporal autonomy at the expense of the secure access to ecological space and labour time of the Global Poor, the former population
undermine the latter population’s temporal autonomy. In this sense as well, we are involved in global time injustices.

(c) Deprivation of the physical requirements for human life in time: The most basic relation to, and dependence on, time for human beings is their physical dependence for the maintenance of continued life on bodily health, and bodily integrity. If a decent degree of temporal autonomy defines what constitutes the fulfilled human life, bodily health and bodily integrity define what constitutes the life in its biological sense. And because humans are sentient and conscious beings, it is not only direct harms but also the threat of harm that can affect the quantity and quality of their temporal lifespan. Unless a person is able to live a healthy life without feeling unnecessary physical insecurity, his/her life might seem unworthy of living in the first place.

In addition to the two cases described above, the Global Affluent may be regarded also as the beneficiaries of the deprivation of the (psycho-)physical needs of the Global Poor in the following two ways. First, the poverty and environmental degradation attributable (at least partly) to our causal contribution (see (a) above) can possibly jeopardise the continued life, bodily health, and bodily integrity of the Global Poor. This seems to be the case in the current global state of affairs in which millions (or even more than a billion) of people lack secure access to food, clean water, basic sanitation, adequate shelter and essential medicines (or medical care), and die prematurely from poverty-related causes (UNDP 1998: 25; 2006: 33, 174; cf. also Pogge 2008: 2-3). Additionally, it is recently reported that, in 2012, around 7 million people globally died as a result of air pollution (WHO 2014). These data indicate that poverty and environmental degradation have already started to undermine the continued life, bodily health and bodily integrity of the Global Poor. Secondly, we may also be the beneficiaries (as consumers) of such industrial commodities whose production processes might have imposed unhealthy or unsafe working conditions upon the Global Poor.
Even worse, many of those in extreme poverty are subject to such inhumane working conditions as forced labour or child labour. According to recent ILO reports, of the total number of 20.9 million forced labourers, 14.2 million (68%) are the victims of labour exploitation in such economic activities that the Global Affluent (including the social elite in underdeveloped societies) might possibly be benefiting from (e.g. agriculture, construction, domestic work, or manufacturing) (ILO 2012: 1), while 168 million children are the victims of child labour globally, including those engaged in agriculture, mining, manufacturing, construction, and services sectors (ILO 2013: vii; 2010: 13). Especially problematic is the case in which child labour is combined with unhealthy/unsafe working conditions. It is estimated that 85 million children globally are working in such hazardous working conditions that directly jeopardise their health and safety (ILO 2013: vii). To the extent that we are consumers of the goods and services produced by forced labourers or child labourers, we are the beneficiaries of the deprivation of their continued life, bodily health, and bodily integrity. Also noteworthy with regard to child labour is the possibility that those working children who are deprived of the time necessary for their intellectual or emotional development (i.e. education, play, etc.) may be also deprived of the opportunities for them to enjoy a fulfilled human life in adulthood. In this sense as well, we may be said to be involved in time injustices against child labourers.

3. How the temporal perspective deepens the understanding of the human rights that provide criteria of global justice

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3 We are aware, for instance, that some multinational corporations such as NIKE, Gap and Nestlé are alleged to have employed child labour or forced labour at some points in their production chains (BBC 2000, 2010). More recently, UNIQLO has been reported to have imposed unfavourable working conditions on its factory workers in China (Nikkei Asian Review 2015).
The temporal perspective, we would therefore argue, is no less important than the ecological perspective for understanding the circumstances and requirements of justice. By adding considerations of temporal debt into the analysis of the conditions of justice and injustice, in the circumstances of radical inequality and ecological overshoot globally, we may attain a more complete picture of how the compound advantages of some are pressed and enjoyed at the expense of corresponding compound disadvantages endured by others. In particular, the analysis helps deepen the conceptual link between the substantive purposes of human rights and the more impersonal demands of justice. For while the ecological perspective allows us to theorise how institutionalised norms of rights regimes can favour mere rights of property over human rights, the temporal perspective allows us to see more fully what those claims of human right are grounded in and consist of.

We may take as a moral benchmark for identifying the wrongness of the various kinds of temporal deprivation the idea of basic rights as influentially presented by Henry Shue in terms of the ‘morality of the depths’. We will show that the three kinds of temporal deprivation closely map onto the three areas of human need and well-being that Shue categorises as subsistence, liberty and security.

(a) Deprivation of a source of social wealth:- The use of time in contributing to social production relates to basic rights of subsistence: time is expended on these activities by an autonomous agent in order to provide (at least) subsistence for herself and those she has responsibilities for or towards. In more affluent economies, people may labour to achieve a quality of life well above subsistence, but the human rights issue concerns preventing people from falling below that line: when the fruits of their labour are expropriated to leave them below that line, there is a violation of human rights and an injustice. This deprivation can also materially occur through the medium of ecological marginalisation: the more marginal one’s subsistence conditions, the more time one has to devote to trying to eke out
any kind of living at all. In that case, the rights violation is not a result of direct expropriation of fruits of labour but it may be mediated through the property relations that allow occupation by others of needed access to ecological resources.

(b) Deprivation of temporal autonomy:- The value of time for the exercise of individual autonomy relates to the basic rights associated with liberty. Empirical research into the nature of poverty tends to emphasise the importance of autonomous time for the living of even a minimally decent human life (Boltvinik 1998). In that respect, the deprivation of temporal autonomy is a consequence, or part, of the deprivation of time as a source of social wealth. More directly, for people to be kept in conditions where they have no freedom at all from demands of labour is already recognised to be a violation of human rights as through slavery or servitude. Understanding the integral and constitutive significance of time for the exercise of autonomy helps in understanding, substantively, what makes a circumstance bad in such a way that we may regard it as a violation of human right. The link here with deprivation of access to ecological space would be indirect in that it is marginalised people who are vulnerable to slavery, servitude and trafficking. So focusing on temporality does help us see more directly exactly wherein human rights issues arise.

(c) Deprivation of the physical requirements for human life in time:- Time and individual health and survival relates to basic rights of personal security. The amount of time in a lifespan that an individual has to lead a minimally decent and healthy life is something that is strongly influenced by social and ecological conditions, and certain minimal conditions of health and welfare are already recognised as human rights. Lives that are cut short through violence or preventable disease may be subject to violations of subsistence and liberty rights, but there is additionally a dimension of personal security that is thereby violated.
So there is no doubt that consideration of the temporal dimension contributes to fleshing out the requirements of human rights. The analysis also helps deal with problematic questions. For instance, we know that people who live in affluence may often be time-poor but we would not want to say they are victims of radical inequality, inequality of the unjust kind that infringes upon the ‘morality of the depths’. The ways in which the kinds of deprivation referred to as aspects of temporal debt can arise are interrelated just as human rights more generally are interrelated. Deprivation of temporal debt does not necessarily track ecological debt, but through varying degrees of mediation, ecological marginalisation contributes to basic rights violations that include the temporal dimensions.

4. How the ecological and temporal perspectives may be integrated in understanding the requirements of global justice

A key reason for invoking the idea of ecological space when thinking about global justice has been that it answers to the need for thinking of environment and economy not as separate and isolated spheres but as profoundly interrelated. Here we have now made the further point that, when thinking about matters of justice, access to ecological space should not be thought of in isolation from the questions of time involved in securing and enjoying such access. Certainly, it is striking that, for the worst off, temporal deprivation and ecological marginalisation are closely interrelated in various ways that are quite directly experienced. More mediately, they are interrelated across the whole global political economy. As those of us on comfortable incomes in the West enjoy consumer goods produced by people working on a fraction of our income in developing countries, we enjoy ample and rich discretionary time while they are sweltering in a factory. The time we spend enjoying consumption of the goods is mediately at the expense of the time they cede in producing
them. Meanwhile, members of that minority global class which is closer to the drivers of the
global economy – particularly in the world of high finance – amass personal fortunes
approaching the size of small states, whereas for a vast number of sub-proletarians in less
developed countries having free time could only arise from a lack of economic opportunities
that would spell death. The obscenity of this inequality is underlined by the fact that no
human being can have more than 24 hours discretionary time a day, so that the amount of
sheer living time ceded by the worst off could not remotely balance in a utilitarian calculus
against the gains of the richest.

Time, like ecological space, is – from our human perspective – finite and bounded in its
availability. The ways in which time can feature as a parameter of human rights and justice
can be related to and reinforce the ways in which norms regarding ecological space operate.
Those, to recall (see Hayward 2013, 2014), can involve use (endosomatic and exosomatic),
occupation and command. Time can be directly used by a person as they live their life; a
person’s time can be indirectly appropriated or expropriated by others – by making one
person work for another; and it can be entirely controlled or commanded by others who not
only take the fruits of one’s labour but also allow no other individual autonomy, or even life
itself – for it can also be truncated or terminated through assault or killing.

In terms of inequalities in availability to persons of ecological space and human time, there
is a degree of interchangeability between them which can serve to reinforce them. (Indeed,
the availability of ecological space is itself a function of time – ecological time – in that the
amount sustainably available is specified as a temporal variable.) Thus we can appreciate,
for instance, that the exosomatic use of ecological space is very much bound up with the use
of time in production: if one works to grow a crop, for instance, and that crop, or a portion
of it, is expropriated, then it is appropriate to say either that one’s time (sense (a)) has been
expropriated or that one’s access to ecological space has been reduced. This
interchangeability of space and time perspectives is not so simple when the focus is not directly on someone’s access to ecological space for immediate use, but it is generally the case that a relation of dis/advantage in one respect can have effects of dis/advantage in the other respect, and to the dis/favour of the same parties. Our time is occupied by others when we are bound to do their bidding for a period through wages or slavery. Ecological marginalisation increases the time that has to be expended in order to achieve subsistence. If you have to work twice as long to acquire a quantity of food, or walk twice as far to get some water, then the exclusionary occupation of ecological space otherwise available to you has effectively robbed you of time. Insofar as occupation of ecological space by non-users or by exploitative users marginalises the disadvantaged the poverty of the latter can be measured according to criteria that include loss of autonomous time. The command of ecological space is also the command of human time in the most profound senses: a party that can decide who can have any rights of access at all has potentially unlimited power over other people – the time it takes to eke a living, the time that they will be able to live, through all the mediations of health, welfare and opportunity that depend on sufficient access to ecological space.

Conclusion

We have argued that injustices relating to unequal access to material means of life are compounded by temporal injustice. One global class’s advantage with respect to use, occupation or command of ecological space can be used to secure an advantage over others with respect to time; meanwhile, disadvantages of time can lead to further disadvantages of access to ecospace, and so on, in a vicious circle. Disadvantages imposed at global class level,
through the combined action structures of states and markets, are experienced at an individual level. The temporal perspective makes this all the more evident.

When theorising global justice, then, the problem of temporal justice cannot be siloed off as a question concerning responsibilities of this generation with regard to the future: it is a problem of the reality and trajectory of the contemporary dynamic relationships of advantage and disadvantage in the global economy. The inherited mainstream view of the trajectory would have us believe that economic and technical progress will enable trickle down to work better in future, so if we keep faith with the dream of a flourishing global capitalism then our descendants will benefit from the human ingenuity that goes into converting ecological processes into human-constructed assets, and in perpetuity. Even keeping that faith, however, time will meanwhile run out for individuals on the wrong end of global inequality before any benefit might ensue, and their children will be orphaned into poverty.

Were there but world enough, and time, the worst off could perhaps wait for the promised effects of trickle down that provide the only warrant for suggesting that the global economy is merely imperfectly just rather than profoundly unjust in its core structures. The problem is, there is not.

References


