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CARBON MARKETS:
REHABILITATING THE EGALITARIAN OBJECTION

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ABSTRACT

While carbon markets have been increasingly scrutinized for their moral merits, the egalitarian critique of carbon markets has been largely neglected. Many admit that emission-trading schemes (ETSs), in their actual form, reproduce pre-existing inequalities. However, this is often seen as a contingent, easily-fixed problem, as carbon markets can fulfill egalitarian goals as long as the initial allocation of permits is made according to an egalitarian ideal. The goal of this paper is to challenge this idealistic rejection of the egalitarian critique of carbon markets by underlying seven structural features of carbon markets that explain why, in all likelihood, ETSs will always reproduce pre-existing inequalities (without even curbing carbon emissions). First, carbon markets are bound to cover mainly the activities of wealthy and powerful corporations. Second, carbon markets are excessively complex and their operations typically lack transparency. Third, information asymmetries persist between public servants and private firms regarding ETSs. Fourth, target setting is a political, highly partisan process. These four features give private firms the power to manipulate at their advantage the rules of a carbon market. Three other features explain why the motivations of agents under an ETS will most of the time be corrupted: carbon markets trivialize the harm done by carbon emissions; they alter our perception of nature's value; and they crowd-out our intrinsic motivations. Thus, influential private firms will have the *power* and *willingness* to bend carbon markets at their advantage.

Keywords: Carbon markets; Emissions trading; Equality; Ethics; Climate change.

1. Introduction

It is now a commonplace to describe carbon emissions as negative externalities. The remedy is thus straightforward: we must internalize this externality by putting a price on carbon. Carbon markets are increasingly seen as the best mean to do this efficiently. Their efficiency is indeed their selling point: they are supposed to be the cheapest way to gain reductions in emissions level. Beside efficiency, they also raise issues of equality and other ethical concerns. Most contenders of emission-trading schemes (hereafter ETSs) who cast aside the ethical concerns also believe that equality concerns are contingent upon the particular setup of a carbon market. In other words, the fact that existing markets have been vectors of inequality is seen as a minor objection, since a carbon market could realize any egalitarian ideal if permits allocation, auction and revenue were well designed.

The main objective of this paper is to rehabilitate the egalitarian objection, and to show that it is likely that carbon markets will always reproduce existing inequalities, without even curbing emissions. In order to defend this thesis, I will flesh out some central characteristics of carbon markets, and will also examine the ethical concerns. However, ethical concerns will have an instrumental role in

the argument: they will be part of my attempt to rehabilitate the egalitarian objection. In a nutshell, I will argue that the wealthiest companies regulated by a carbon market will always have the power and the willingness to manipulate – at their advantage – the features of this particular market, so pre-existing inequalities will be reproduced in a new sphere.

It should be noted that our critical analysis of carbon markets does not presuppose a particular conception of egalitarianism, such as the Rawlsian difference principle or Amartya Sen's conception of capabilities. I simply take for granted three postulates: inequalities of power and resources in modern societies are high (Piketty 2014; Stiglitz 2013); the steepening of these inequalities is morally problematic; political reforms and measures – including the ones taken in the fight against climate change – should not contribute to the steepening of these inequalities (and should, when possible, be conceived and implemented in ways that reduce these inequalities). These general postulates should suffice to ground our egalitarian critique of carbon markets.

I will first briefly remind the main worries about carbon emission, and the alleged role of carbon markets (2). I will then examine the features of carbon markets that explain why firms under emission-trading schemes have disproportionate power (3) and corrupted motivations (4), before concluding (5).

2. The promises of carbon markets

The risks facing our climate are well known. Carbon dioxide and its equivalents (hereafter CO_2^e), released by the burning of fossil fuels and by large-scale deforestation, are greenhouse gases trapped in the atmosphere and other carbon sinks (mainly forests, oceans, and soil), warming the climate and disrupting other ecosystemic equilibriums. In order to limit the effects of climate change (hereafter CC), the international community agreed on a single target: compared to pre-industrial levels, climate warming should not exceed 2 °C (there has already been a 0,85°C warming in the 1880-2012 period (GIEC 2013b, 3)). The Intergovernmental Panel on Climate Change (hereafter IPCC) estimates that in order to achieve this ambitious goal, there must be a 40 to 70% reduction in our CO_2^e emissions before 2050 (GIEC 2013a, 11).

In the economic language, CO_2^e emissions are seen as negative externalities, i.e. undesirable consequences generated by economic transactions, but not accounted for in market prices. The first thing to do according to economic orthodoxy is to internalize these externalities by putting a price on carbon, giving adequate signals to economic agents. We will then pay the full price of our consumption and production, and this higher price will give us the incentive to invest in cleaner technologies and/or to reduce our consumption.

This pricing can be done in multiple ways: carbon taxes, carbon markets, or specific taxes on carbon-intensive products. Taxes are fiscal mechanisms: for the setting of their price, they are dependent

on succeeding governments and their changing ideologies. And they are seen as clumsy tools: every economic agent – whether frugal or energy guzzling – pay the same tax. By contrast, a carbon market is supposed to be much more flexible and efficient by virtue of its cap-and-trade structure. A fixed quantity of emissions permits – each permit giving the right to emit one ton of CO_2^e – are distributed among private companies. Permits are thereafter traded between parties, and their price reflects the cap initially established.

Carbon markets are described as the most efficient way to curb CO_2^e emissions. While efficiency can have equivocal meanings (Le Grand 1990), we take this notion in a specific sense, combining two elements: *effectiveness* in curbing CO_2^e emissions at a *low cost*. The cap-and-trade structure can reap the cheapest gains in the fastest way (for a conventional description, see Caney and Hepburn 2011, 205–206). On the one hand, big polluters who can easily and cheaply make the switch to cleaner technologies are incentivised to do so, in order to sell their extra permits to other parties (so the green investment of the seller will be indirectly subsidized). On the other hand, big polluters who are locked in carbon-intensive technologies are not asked to support the unbearable burden of meeting rigid regulations – they simply have to buy extra permits and they can keep surfing the technological status quo. In other words, an ETS quickly reaches the low-hanging fruits, but tolerates big polluters – as long as they pay the bill. A *global* reduction in CO_2^e emissions will be achieved, with neither parties being hindered in their economic activities. The objective is to curb emissions in a painless manner and without curbing economic growth. For this reason, carbon markets have the other advantage of offering a realistic, feasible solution to climate change (Aldred 2012, 357; Caney and Hepburn 2011, 227). But beside efficiency and political feasibility, how do carbon markets fare with equality concerns?

We can hardly figure *a priori* whether carbons markets satisfy equality concerns or not. Up until now, the European Union Emissions Trading System (hereafter EU ETS) has been the main operating carbon market around the world, and has been criticised for its unequal outcomes. The wealthiest corporations have been able to extract windfall profits from the carbon market, while vulnerable communities in the South have suffered the tribulations of "offset" mechanisms (new permits can be introduced in the EU ETS if a company subsidises a carbon storage project such as the plantation of eucalyptus monocultures). Numerous stories of human rights abuse, land grabs, dispossession, and alienation due to the EU ETS have been sadly witnessed in the global South[2]. One of the main problem of the EU ETS was the "grandfathering" of CO_2^e permits: the biggest polluters – i.e. the wealthiest corporations – freely received the largest amount of permits, in proportion to their past levels of emissions. Not only did these companies were not incentivised to invest in cleaner technologies, but by allowing them to resell these free permits, public authorities generously subsidised the highest emitters. And even though these permits were given free of charge, some energy companies shamelessly increased the price of energy to reflect the "cost" of this new participation in the EU ETS (Aldred 2012, 340; Pearse and Böhm 2014, 331; Spash 2010, 177). So consumers picked up the tab. And it is well

know that increases in energy prices disproportionally affects the poorest strata of the population (Grainger and Kolstad 2010).

However, this unfortunate course of action is not seen as inherent to carbon markets. The inequalities of actually existing carbon markets are seen as a contingent, easily-fixed problem, as these markets can fulfill egalitarian goals as long as the initial allocation of CO_2^e permits is made according to an egalitarian ideal. This is a point of view defended by many commentators of carbon markets, such as Simon Caney and Cameron Hepburn (Caney 2010, 214–15; Caney and Hepburn 2011, 223–24), Edward Page (2013, 237), and Jo Dirix, Wouter Peeters, and Sigrid Sterckx (2016, 71–72). For instance, it has been argued that we could simply give away carbon allowances to those in need, auction off the remaining permits, and then use the revenues for progressive purposes (in that case, the ETS would be a hybrid market-fiscal mechanism). And we could revise or abolish offset mechanisms, as suggested by Simon Caney (2010, 216–18).

The remainder of this paper critiques this idealistic posture by underlying certain peculiar features of carbon markets that explain why, in all likelihood, ETSs will always reproduce pre-existing inequalities (without even curbing CO_2^e emissions).

3. The power of those regulated by an ETS

I will begin my demonstration by bringing to light how private corporations under a carbon market have a great power, that of influencing – even dictating – the attributes of the ETS. Four elements jointly explain this power (none of these element is, on its own, sufficient).

First, we should bear in mind that carbon markets apply more easily to certain types of actors. It would be excessively complex to cover the activities of agents for whom emissions are diffuse, discontinuous, and modest, as is the case for small enterprises, transportation, and households[3]. By contrast, it covers more easily the activities of agents for whom emissions are continuous, abundant, and concentrated on a specific location. Such is the case for a coal-fired power station, an aluminum plant, a petrochemical factory, or a car manufacturer. So it should be of no surprise that the main sector covered by the EU ETS is the energy sector. Equally, it should be of no surprise that the energy giant Shell, of all companies lobbying the European Commission, is the one having the most numerous meetings with the climate and energy Commissioners regarding the EU ETS (Reyes and Belén 2016, 22). In fact, many industrial and energy sectors are controlled by a few dominant actors (Spash 2010, 176). Such oligopolies are acute in the fossil fuel industry. The reason holds in the fact that the energy sector is characterized by natural monopolies: the prohibitive cost of infrastructures gives a considerable competitive advantage to the dominant company who takes advantage first of these infrastructures (whose construction is often paid for by public subsidies). So the fossil fuel industry is dominated either by the supermajors (Shell, Chevron, Exxon, BP, Total), either by state-owned companies, as nationalization is a typical political answer to natural monopolies (Hansmann 1996). Furthermore, these

industrial and petroleum giants are far from being start-ups: they often have a long history, including a long history of lobbying and political activity. In short, the actors regulated by an ETS tend to be companies enjoying vast economic and political resources. To stay with the Shell example, this oil company alone spent 4,5 million euros lobbying the European Commission regarding the EU ETS (Reyes and Belén 2016, 22).

The second factor is the following: in any carbon market, public agents operating the ETS heavily depend on the actors they are supposed to regulate. This dependency constitutes of two information asymmetries. First, private companies, not public authorities, are able to evaluate the costs and technological obstacles facing CO_2^e reductions (Aldred 2016, 350–51; Caney and Hepburn 2011, 205). In what circumstance the replacement of this industrial filter by that other one would be appropriate for an aluminum plant? Legislators – and their constituents – are poorly equipped to answer this type of question. A study made by *Corporate Europe Observatory* reveals that private companies use this information asymmetry as bargaining leverage in their lobbying activities:

> Sometimes, lobbyists approach MEPs [members of European parliament] softly proclaiming their industry expertise, explaining why certain aspects of what are proposed is not possible. The accompanying lobby documents come with a bewildering array of graphs, pie charts, diagrams, and infographics. For example, lobbyists have suggested that existing improvements already bring them close to the technological limits of emissions reductions – even in cases where this is far from accurate. (Reyes and Belén 2016, 14, footnotes removed)

A second information asymmetry overwhelms any ETS: public authorities depend on private companies for the monitoring of their CO_2^e emissions, since this surveillance is mostly done by self-reporting (Aldred 2016, 160–61; Spash 2010, 180–81). A firm could understate its CO_2^e emissions, but if allowances are given in a grandfathering manner, a firm could be tempted to overstate its emissions in order to have additional permits the following year. Firms must themselves elaborate CO_2^e surveillance and control plans, especially for offset programs (Spash 2010, 186–87).

The third factor explaining the disproportionate power of companies under an ETS is the striking complexity and opacity of the scheme. As an anecdotal illustration of this complexity, Australian authorities needed 820 pages to explain their ETS proposal, a proposal which then required 210 amendments in the Senate (Spash 2010, 171). An ETS needs tons of rules regarding the banking, borrowing and trading of permits, all this in multiple jurisdictions in the case of a regional ETS such as the EU ETS (Page 2012, 943; Pearse and Böhm 2014, 333). A carbon market also involve multiple actors, such as private inspectors, financial institutions, etc. Complexity certainly does not help the transparency of the ETS (Page 2012, 940–41; Spash 2010, 171). Indeed, the details of an ETS are almost always discussed behind closed doors. In Europe, the rules of the EU ETS are decided within the European Commission, an institution often criticized for its lack of transparency. Decisions there are taken following private meetings with stakeholders. *Corporate Europe Observatory* reviewed all the

meetings held by Miguel Arias Cañete and Maroš Šefčovič, climate and energy Commissioners and main conductors of the EU ETS. The result? From 2014 to 2016, 77% of their meetings (that they had personally, or members of their cabinet) were with representatives of the corporate world, and only 18% with public interest groups such as trade unions or non-governmental organisations (Reyes and Belén 2016, 8). And things are not getting better: less and less information is disclosed concerning these meetings (Reyes and Belén 2016, 8).

The fourth factor concerns target setting as an intrinsically political, partisan process. As I explained above, the IPCC suggests we operate a 40 to 70% reduction of our CO_2^e emissions before 2050 in order to stay under the threshold of a 2 °C warming. But this target and its underlying predictions are clustered with uncertainty. First, this target gives us no guarantee: it makes it *probable* (probability of 66-100%) that earth surfaces will stay under the threshold of a 2 °C warming (GIEC 2013a, 10). But more importantly, most predictions of climate warming are done in a gradualist fashion: if we emit X quantity of greenhouse gases, it could provoke Y warming, and that could elevate sea levels by Z. Possibilities of feedback loops and tipping points – themselves triggering other ecosystemic disruptions – are in the blind spot of climate modelling. So the establishment of the cap in a carbon market is not, despite the appearances, a scientific exercise. It is a highly *political* exercise, in the partisan sense of the term (Spash 2010, 179). In other words, targets suggested by the IPCC or other organisations are not a precise scientific threshold under which no risk is incurred. They are ranges of estimates surrounded by many uncertainties. Setting the cap must go through partisan negotiations[4].

We can now tie together these four threads. Because of the fact that:

1. an ETS is more suited to regulate economic sectors that are dominated by a few influential corporations;
2. an ETS is afflicted by information asymmetries regarding (notably) technological costs and barriers;
3. an ETS is particularly complex and opaque;

It is very likely that a handful of industrial and energy giants will have critical influence in the negotiations of an ETS and its features, such as the way permits are allocated, but also

4. regarding the setting of the cap, which is much more a political process than a scientific one.

As an illustration, let's again turn to the EU ETS. At first, permits were allowed so generously that the EU ETS crashed in 2007, with its price falling under 1€. Afterward, the price of one ton of CO_2^e stabilized between 5 and 10€, which is very low. Discussions of reforms have been laborious and measures are deferred. And the future of the EU ETS is not so hopeful either: according to *Carbon Market Watch*, gathering more than 800 NGOs and academics, the next phase of the EU ETS (2021-2030) will give away 175 billion euros worth of CO_2^e permits (Executive Summary 2017). Moreover, the European Union initially decided to put an end to free allowances in 2020, but then revised its

decision: this practice will continue at least until 2030 (Reyes and Belén 2016, 7). Did the power of wealthy corporations and their "threatening" methods of lobbying (according to a former MEP, quoted in Reyes and Belén 2016, 14) play any role in these decisions? One can only speculate.

These four features give private firms the *power* to manipulate at their advantage the rules of a carbon market. But will firms have the *willingness* to do so? To answer this question, we must now dive into an issue hotly debated in recent years, concerning the *ethical* concerns raised against carbon markets.

4. The motivations of those regulated by an ETS

Among political philosophers, the critique of carbon markets unified around three closely-tied moral objections, focusing on the commodification of nature and the perversion of our motivations[5]. The first one opposes the private appropriation of carbon sinks.

4.1. Carbon permits as rights to harm

According to this objection, humans are all co-owner of the Earth. Carbon sinks, starting with the atmosphere, are seen as public goods, and nobody can legitimately parcel out nature in pieces of private property (see Goodin 1994, 578–579; Lohmann 2014, 175).

This line of thought contests the *private* appropriation of nature. But one can go a step further and contest the mere appropriation of nature, whether private or collective: we are not – according to this objection – in a relation of ownership with nature, but in a relation of stewardship, or of usufruct: maybe the Earth should always be seen as belonging to future generations, the living being provisional guardians (Weiss 2009, 225). So, according to the two versions of the objection, the problem with carbon markets is that emission permits correspond to private appropriations of nature's carbon sinks.

Advocates of ETSs oppose this last conclusion: carbon markets are not, according to them, tantamount to the private appropriation of nature. This response relies on a pivotal distinction between property-rights and use-rights. The CO_2^e permit lacks the necessary characteristics to be considered a full property-right. It is more comparable to a temporary use-right. The temporary aspect is crucial to the response. Simon Caney, for instance, compares the emission permit to a lease or the right to use a camping site. In both cases, the purchaser pays to use a limited space for a limited amount of time. The CO_2^e permit is similar: the purchaser is given the right to emit a limited quantity of CO_2^e for a limited time, since CO_2^e eventually dissolve (Caney 2010, 204; Caney and Hepburn 2011, 211; Dirix, Peeters, and Sterckx 2016, 62; Page 2013, 239).

This reply is unconvincing. On the one hand, it underestimates the permanent aspect of emissions. Part of CO_2^e stay in the atmosphere for centuries, and up to 40% of it will take more than a millennium to dissolve (GIEC 2013b, 26; see also Mathesius et al. 2015). Even if our emissions dropped to zero, the accumulation of our past emissions would still cause global warming and ocean acidification

for long periods of time. On the other hand, the reply overestimates the permanent aspect of property rights in general (Aldred 2012, 341). It is misleading to describe property rights as fixed objects through time, without alterations or revisions. To take but one example, mining companies are often granted the right to expropriate (with compensation) residents of an area where extracting prospects are promising. The private citizen who gets expelled from his home learns the hard way that property rights are never set in stone. But this does not stop us from speaking of property rights, even though they are neither timeless nor absolute.

For these two reasons, it seems perfectly reasonable to speak of property-rights for CO_2^e permits. In any case, these considerations force us to qualify the private property objection. As noted by Jonathan Aldred (2012, 342), private property *per se* may not be the problem: the problem is the destruction-right that is concomitant to the property-right. Property-rights are normally restricted in many ways. I can be the legitimate owner of a vast land, but I will not necessarily have the right to store nuclear waste on it, or to erect a twenty-store building. Even if I want to cut down a single tree, I may need the approval from municipal authorities. If a municipality authorizes its citizen to store nuclear waste in their backyard, this particular right would be problematic, not the mere act of owning land. Similarly, the problem with a CO_2^e permit is the right to exhaust the object of property; or, in other words, to saturate natural carbon sinks, thus contributing to climate change.

Partisans of carbon markets reject the idea that CO_2^e permits give the right to "damage" or "pollute" the atmosphere. The whole purpose of an ETS is to set a cap – reflected in the price of the permit – under which we can legitimately emit CO_2^e. This ceiling, established following the recommendations of the scientific community, sets our reductions target. And if we reach this target, we will succeed in mitigating more dangerous CC. As long as our emissions stay below the cap, and as long as the cap is sufficiently low, our emissions should not be seen as forms of "pollution", i.e. they should not be seen as morally reprehensible.

This response brings us to the heart of the disagreement, opposing two visions of CO_2^e emissions. On the one side, some see emissions as *damages* that we cannot excuse under the claim that a monetary compensation was given. On the other side, some see CO_2^e as *costs* that we must aggregate in the grand calculus of general welfare.

Let's begin with the cost approach. Under a certain level of emissions, these represent a cost, but a cost morally acceptable if it allows greater benefits, in the form of the production of consumption goods. This perspective is in line with the paradigm of weak sustainability: considering the greater wealth of future generations, the costs represented by CO_2^e are seen as compensated, as long as they stay under a certain threshold. We are thus in a logic of compensation that sees the pricing of CO_2^e as a *fee* rather than a *fine* (Sandel 2005, 94).

The alternative vision can be described as the moralizing vision of CO_2^e, seen as damages inerasable by monetary compensations (see Goodin 1994, 581–583). A satirical website offered a comical analogy with a market for cheating: stay faithful to your spouse in order to sell your right to infidelity to your adventurous neighbour! If the total number of infidelity permits is lower than the real rate of infidelity, this market will efficiently bring a global benefit to marital relationships. This comparisons is undoubtedly caricatural (in a market for infidelity, victims are identifiable, relationships of trust are broken, etc.). But this scabrous proposal tries to highlight the moral dimension of the problem: cheating or polluting are morally problematic actions, and this moral dimension does not disappear when a payment is received.

I see two arguments in favor of this moralizing approach, according to which carbon pricing – if used – should take the form of a morally charged fine, not a simple fee. First, we must emphasize that CC is far from a trivial risk reducible to a few weather events becoming gradually more severe, such as increased rainfall, heatwaves, etc. Extreme weather events will indeed become more frequent and more severe, but CC will combine with and aggravate other environmental problems such as soil erosion and losses in biodiversity. More importantly, feedback loops and tipping points risk disrupting entire ecosystemic equilibriums. Risks regarding greenhouse gases should not be understated. But on its own, this first argument is insufficient, since one could reply that the cap of the ETS must simply be low enough to account for these extreme risks. A second argument must complete the picture.

According to the second argument, the cost approach is committed to some kind of *climate hubris*, insofar as it has excessive confidence in the reductions target suggested by the scientific community. The cap of an ETS is described as giving a "level of guarantee" or "certainty" regarding CO_2^e reductions, the certainty that "the 'cap' supports environmental integrity" (Caney and Hepburn 2011, 202; 205). But as we saw earlier, these targets are ranges of estimates packed with uncertainties and unable to reliably take into account feedback loops and tipping points. However, we do dispose of a few certainties, among which the following: our emissions will cause climate warming and ecosystemic perturbations for extended time periods. What can we conclude from this? That we must renounce the idea that as long as we stay under a certain cap, CO_2^e emissions can be seen as inoffensive, and only damaging when the threshold is overstepped (on this, see Lohmann 2014, 166; Posner and Weisbach 2010, 53–54; Spash 2010, 179). Humility is advised.

Does it mean that *any* CO_2^e emission must be seen as a harm? If so, an ETS would trivialise this harm, as argued by Aldred (2012, 343–344). But it seems like a radical posture: populations from developed and emerging countries have a lifestyle relying massively on fossil fuel. A sudden and complete stoppage of CO_2^e emissions is inconceivable. And according to one of the most consensual principal in moral philosophy, nobody can be expected to bear an obligation that cannot be met: *ought implies can*. Hence, we cannot see every single CO_2^e emission as a harm (Page 2013, 236–37).

This response can be mitigated. First, CO_2^e emissions are not always a fatality: alternatives are often available. Renewable forms of energy have improved tremendously – technically speaking – in the last decade; various modes of transportation and agriculture have a very low carbonic intensity; frugality should be promoted; etc. Also, even if we cannot abruptly bring our CO_2^e emissions to zero, this does not imply that we should reject the obligation of diminishing them as much as possible. The "ought implies can objection" rests on a binary opposition between doing and not doing something. We can conceive of an obligation that cannot be met absolutely, but that can be approximated. In that case, there is no logical discomfort in saying that we should move toward this obligation as much as possible, even if some necessary harm subsists. Therefore, there is no logical inconsistency in saying that any CO_2^e emission can be seen as a harm. Third, even if every single amount of CO_2^e emission should be seen as *harmful*, still, we must admit that some minimal amount of CO_2^e emission should not be seen as *wrongful*. Emissions are the by-product of almost every human activities, including breathing. Even if we decide to move toward frugality and a decarbonized economy, and even if every single person (rich and poor) should try to limit their carbon footprint, some minimal amount of CO_2^e emissions is still necessary if one wishes to survive and enjoy some basic level of wellbeing. A comparison can be made with the diet of a deep ecologist who believes that all living entities – including plants – should be respected as intrinsically valuable and not used in instrumental fashion. This ecological enthusiast considers that harvesting and eating plants and vegetables is as morally problematic as eating human beings. But if he wants to survive, he still has to consume organic matter. This person would maybe reach a conclusion similar than ours: even though the problem is unavoidable, one should move toward frugality and favor courses of action that minimize the inevitable impact (e.g. eating fruits that have naturally fell on the floor). The deep ecologist would maybe agree that his impact on living entities is harmful, not wrongful, as long as he respects the ethical imperative of minimizing this impact[6].

Therefore, the private appropriation objection – when correctly realigned – holds out. We can sum it up in the following way:

> **Right to harm objection**: an ETS embodies the idea that under a certain threshold, a CO_2^e emission can be seen as a morally acceptable cost. Yet, because of the gravity and uncertainties surrounding CC to come, the cost approach *trivialises the harm* done by CO_2^e emissions.

The heart of this first objection is the trivialisation of a harm. This is intimately linked to the next objection.

4.2. Nature's price and perceived value

According to this second objection, putting a price on CO_2^e permits risks altering our perception of the value of nature – of the atmosphere and other carbon sinks. By giving a monetary value to nature, it becomes fungible, i.e. substitutable with other goods of equal monetary value. We are, again, in a logic of compensation and of cost-benefit calculus. Pricing carbon is used to give the full cost of an act

of consumption or production: as long as I pay the price, I can consider to have compensated the rest of the population for the externalities of my activity.

The pricing objection goes one step further. It advances that putting a price on nature alters our valuing of it. Ours ways of valuing nature – esthetic, spiritual, recreational, etc. – are diverse and depend on cultural histories and personal idiosyncrasies. Many of us, for instance, endorse some form of deep ecology, ascribing intrinsic value to all living entities, sentient beings or entire ecosystems (Butler and Acott 2007). But in putting a price on parts of the natural environment, such as carbon sinks, we end up undermining their value and reducing them to their carbon sink function, discharged of their multiple meanings.

Advocates of ETSs reply that a price do not necessarily determine the value of an object: a price can be used to merely *protect* the object whose value is fixed independently from markets and prices (Caney and Hepburn 2011, 220–21; Dirix, Peeters, and Sterckx 2016, 64–65; Page 2013, 240). Simon Caney, for instance, takes the example of a Rembrandt painting at the museum (2010, 206). The price paid by the visitor to enter the museum does not fix the value of the painting admired. This visitor may have a complex, non-instrumental attitude toward the painting, perceiving in it something incommensurable (*not* substitutable by anything else), while being happy to spend a few dollars on the entry. With this fee, he contributes to the funding of the museum and to the protection of its precious content.

This reply has some appeal, but should not be seen as decisive, for two reasons. First of all, one should not caricature the objection. Jo Dirix, Wooter Peeters and Sigrid Sterckx, for instance, present the pricing objection as follows: "Exactly because of these claims regarding the relation between markets and value, the proponents of the price argument contest ET's [emission trading] validity, because, according to them, a market mechanism cannot *determine the intrinsic value* of the natural world." (2016, 64, my italic) However, the objection is more subtle – at least in my understanding. No need to refer to the intrinsic value of nature: we can simple state that nature has diverse values which are not reducible to the one of carbon sink. It has also, for instance, a recreational value. But more importantly, the objection does not go as far as saying that a price *determines entirely* the value of an object. It simply states that in many circumstances, the price of an object will affect, to some extent, our perception of its value. This influence often takes the form of a reduction and a simplification of the object's value (for the classic example of blood donation, see Titmuss 1971).

Second of all, the Rembrandt example is misleading. The visitor at the museum is in a purely contemplative attitude toward the painting, while our attitude toward nature is much more complex. It is an ambiguous relation of protection and exploitation, of contemplation and consumption. Moreover, the art lover does not pay to *use* or *damage* the painting: what a polluter buys with a CO_2^e permit is the

right to *use* a part of nature's capacity to absorb his carbon waste – and this use can be seen as a harm if what I argued for in the previous section is correct.

Instead of paintings in museums, a more adequate allegory for carbon markets would be hunting permits for endangered species. Imagine that, under the pretext of collecting funds for the protection of species facing extinction, a governmental agency decides to auction off tradable permits giving the right to hunt those species. For a hunter, the hope of acquiring the head of a polar bear and the horn of a black rhino as hunting trophies seems thrilling. Here, contrary to the Rembrandt example, the "object" of the permit is something for which we have an ambivalent relation of predation-protection. What would be the effects of such a hunting-trading scheme? It seems reasonable to assume that such a scheme would alter, at least minimally, our ways of valuing the fauna and threatened species. Hunters will compete for these "trophies" that will become luxury goods, producing a new king of conspicuous consumption. More millionaires and billionaires will find a new interest in hunting. This hunting scheme will convey the idea that protection the fauna is a game composed of "objects" that can be executed, wrapped and brought home. The majesty of the polar bear, king of the white arctic deserts, will be reduced to the majesty of a stuffed head taking center stage on a chimney. Sadly, this scenario is far from fictional: hunting permits for the black rhino and the polar bear – both endangered species – have been sold in auctions (Associated Press 2015; Choné 2017)[7].

So it seems perfectly plausible to contend that the pricing of complex goods tends to affect our ways of valuing them. The pricing objection can be summarized in the following way:

> **Pricing objection**: CO_2^e permits put a price on parts of nature. Pricing nature risks *altering our perception of its value*.

Here, the heart of the objection concerns our perception of nature's value. This objection is intimately linked to the third one.

4.3. Crowding-out of intrinsic motivation

The ETS seeks to create a new structure of incentives. As explained earlier, firms who can cheaply switch to cleaner technologies are incentivised to do so by being able to sell their extra permits to other companies. Business executives may feel compelled by moral (intrinsic) reasons to reduce their ecological footprint, but an ETS adds new (extrinsic) reasons: it might be lucrative to do so. For simplicity, let's say that the intrinsic reason to reduce CO_2^e emissions is this: it is our duty to reduce our carbon footprint for the sake of future generations who will have an interest in inheriting a stable climate and a rich biodiversity. This reason is intrinsic insofar as it is independent from the carrots (material incentives) and the sticks (fear of punishment).

The objection, discussed early in the debate by Robert Goodin (1994, 581), is the following: the introduction of external motivations does not simply add up to intrinsic motivations. On the contrary,

they evacuate intrinsic motivations. The presence of carrots (material incentives) expulses – to some extent – our desire to "do the right thing for the sake of it".

Partisans of ETSs commonly reply that people do not seem to display strong intrinsic motivations for the protection of the environment (Dirix, Peeters, and Sterckx 2016, 67; Page 2013, 241). If they were really moved by such motivations, we would not be where we are, pushed to the wall with an environmental and climate crises still worsening every year even though the problem has been identified at least since the '90s.

Despite the appearances, this reply does not prove anything. Let's admit that our intrinsic motivation to stabilise and reduce our CO_2^e emissions is weak (which is probably true). This could be the indication that we never had any strong intrinsic motivation for the protection of carbon sinks. But it could also be the indication that the private appropriation and pricing of nature already succeeds in hampering our intrinsic motivations – whether these were initially strong or limited. The commodification of nature is not so new. The EU ETS was inaugurated in 2005; sulfur markets exist in the United States since the '90s; and as soon as the '70s, different kinds of monetary compensation for ecosystemic services were bought and sold in the US, especially for wetlands (there is now hundreds of these "compensation banks" only in the US, see Tordjman and Boisvert 2012, 36–37). So an appropriate counterfactual is missing: what would be the motivations of economic actors today if the reduction of their ecological footprint had never been the object of a financial incentive? We are bound to speculate. But these speculations must take into consideration that awareness to the environmental crisis is also recent. It is common to admit that before 1990, the damage done by CO_2^e emissions was mostly unknown or uncertain. So the development of an environmental conscience and the development of market mechanisms to promote eco-friendly behavior ran in parallel. We thus lack a point of comparison, since we cannot know how the environmental conscience would have developed without the impediment – or the impetus! – of market mechanisms developing alongside. We cannot know if these external incentives had a positive or negative impact on our intrinsic motivations. Would the strengthening of the ecological conscience – without any material incentives – be more effective? To inform our speculations, let us turn to empirical evidence coming from psychology studies on motivation.

As explained by Daniel Pink, external incentives can be useful when the task ahead is mechanical and repetitive. But as soon as the task requires some level of creativity, autonomy, and appeals to a sense of duty – three elements present in the fight against CC – external incentives not only crowd-out our intrinsic motivation, but even corrupts our inclination to abide by the rules (Pink 2009, chapter 2). After reviewing many studies on the topic, Pink describes the situation this way: "And what science is revealing is that carrots and sticks can promote bad behavior, create addiction, and encourage short-term thinking at the expense of the long view. […] The problem with making an extrinsic reward the only destination that matters is that some people will choose the quickest route there, even if it means

taking the low road." (Pink 2009) The last thing we want to do regarding CC mitigation is to bring economic actors to favor the short-term and the low road.

Yet, proponents of ETSs respond that these findings from psychology are hardly transposable to the peculiar structure of carbon markets (Dirix, Peeters, and Sterckx 2016, 67; Page 2013, 241). Regarding the motivations of agents under an ETS, we simply lack reliable data.

This is not exactly true. Let's admit – even if I am quite sceptical about this – that the findings in psychology of motivation are not transposable to the case of ETSs. Still, two recent studies are highly relevant to solve the issue. This first one studied our motivations in the specific context of the market; the other studied our motivations in the specific context of markets for ecosystemic services.

In 2013, Armin Falk and Nora Szech studied the impact of markets on our motivations, market-based incentives being one case of extrinsic motivation. In the first phase of the experiment, participants had the possibility to kill a mouse in exchange for a sum of money (10 or 20$). A minority of participants (45%) took the deal and let the mouse die. In the second phase of the experiment, participants were placed in a market situation: they were in competition with each other to make a deal that would allow them to win 10 or 20$, knowing that if the transaction was completed, a mouse would die. The incentive (10 or 20$) and the moral issue (life or death of a mouse) was the same in both situations. The only difference was the competitive market context, but that was sufficient to change the participants' behavior. In the second phase, the majority of participants (75%) did complete the transaction, despite the collateral damage (Falk and Szech 2013). This shockingly illustrates how the market context corrupts our noble motivations.

Furthermore, in 2015, three researchers examined the literature on the effects of "payments for ecosystemic services" on people's motivations. They reviewed 18 empirical studies, and one of the main conclusions was that receiving a payment for preserving a natural site or resource seemed to have, most of the time, a negative impact on intrinsic motivations (Rode, Gómez-Baggethun, and Krause 2015).

For these reasons, the idea that ETSs will impede our intrinsic motivations has great plausibility. We can now summarise the third objection:

> **Crowding-out objection**: sufficient empirical evidence support the prediction that carbon markets will have (and already have) a *negative impact on our intrinsic motivations*.

In other words, advocates of carbon markets can no longer plead the lack of evidence.

Let's now recapitulate the arguments laid down so far, concerning the power and motivations of agents under ETSs.

1. Carbon markets apply mostly to industrial and energy giants
2. Two information asymmetries interfere with the political management of carbon markets.
3. A carbon market is of great complexity and opacity.

4. Setting the cap of a carbon market is a political, partisan exercise.

These four elements explain why firms have the power to manipulate as they wish the features of a carbon market. Will they have the willingness to do so?

5. The privation appropriation of carbon sinks – and the concomitant right to exhaust them – trivialises the harm done by CO_2^e.
6. The pricing of carbon sinks alters people's perception of their value.
7. Markets for nature's protection tend to crowd-out intrinsic motivations.

These three elements explain why the motivations of agents under an ETS will most of the time be corrupted. We can postulate that private enterprises are normally driven by complex motivations: profit-seeking, concern for their reputation, and even some level of intrinsic motivation. The establishment of carbon markets pulls their motivation – regarding the duty to mitigate CC – in the direction of a maximizing behaviour, encouraging what G. A. Cohen called a "maximizing ethos" (1997, see also Aldred 2012, 352). So private firms under carbon markets will have the *willingness* to shape (or influence greatly) carbon markets at their advantage, maximizing their hold of the market and minimizing their obligations toward carbon reductions.

More precisely, corporations will have the power and willingness to keep the CO_2^e permits abundant and cheap (thus preventing significant CO_2^e reductions); to keep the free allocation and grandfathering of permits (thus giving lucrative permits to the wealthiest and biggest polluters); to keep many flexibility measures (thus transferring the ecological burden to vulnerable communities in the South, with its share of ecological disasters, such as eucalyptus monocultures draining the water-springs of rural communities); to keep indemnification for indirect costs due to increases in the price of electricity (Reyes and Belén 2016, 3), while consumers are handed the bill (Aldred 2012, 340; Pearse and Böhm 2014, 331; Spash 2010, 177), and while the most affected consumers are the poorest ones (Grainger and Kolstad 2010).

5. Conclusion

To sum up, the features of ETSs explored in this paper show that influential private firms will have the *power* and *willingness* to bend carbon markets at their advantage. Whether on the allocation of CO_2^e permits, on flexibility or indemnification measures, the wealthiest and biggest polluters will find ways to benefit from carbon markets, while most vulnerable consumers and communities will bear the ecological and financial burden. Thus, chances are high that any carbon market will reproduce, in a new economic sphere, pre-existing inequalities and relations of domination.

As stated in the introduction, inequalities of resources and power are already high in modern societies. Political measures taken in the fight against climate change should not contribute to these

inequalities. Unfortunately, carbon markets will probably contribute to the steepening of existing inequalities of resources and power, while not even curbing CO_2^e emissions effectively. Consequently, we should view the promises of ETSs with scepticism, and look for other measures.

Indeed, one should keep in mind that ETSs are not the only way of putting a price on carbon. Another remedy would be to impose high taxes on luxury products that are carbon-intensive, such as sport-utility vehicles, air travel, red meat, etc. By targeting luxury products, these measures would be progressive. And it might prove easier to put a moral stigma on an object (e.g. a private jet) than on a general activity (emitting greenhouse gases), thus making the tax more a fine than a fee. Such fiscal measures, less complex and less subjected to information asymmetries, would not be inserted in any market context. In sum, this avenue displays interesting promises, but unfortunately, it has been barely discussed.

Notes

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[2] These stories are discussed in Böhm and Dabhi 2009. See also Pearse and Böhm 2014, 329–330; Lohmann 2014, 169–170. Moreover, these offsetting mechanisms are not even beneficial from an ecologically point of view (Dooley 2014; Pearse and Böhm 2014, 332)

[3] The EU ETS gradually covers the aviation sector, but as noticed by Jonathan Aldred, we cannot expect significant CO2e reductions in this sector (2012, 352–353). After all, airplanes are by nature highly energy-efficient!

[4] This fourth factor also characterizes the price-setting of a carbon tax. But carbon taxes are not stricken by the other three factors as carbon markets are. Again, it is the combination of the seven factors that is peculiar to carbon markets.

[5] I leave aside the "civic responsibility" objection.

[6] For forcing me to clarify these points, I would like to thank Lukas Meyer.

[7] Other images have been used to describe carbon markets, such as the hiker paying to enter a natural park (Dirix, Peeters, and Sterckx 2016, 65) or visitors paying to see ancient ruins (Caney and Hepburn 2011, 221). But these images are as misleading as the Rembranlt example, for the reasons explained above.

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