

Augmenting the Green Deal – The Case for Introducing Personal Carbon Trading in the EU

Abstract

The Green Deal, launched in December 2019, and added to with further concrete proposals in July 2021, contains many positive ideas for meeting Europe's commitment to carbon neutrality by 2050. Even so, serious doubts must remain as to whether it will be sufficient. One problem is that whatever progress the EU may succeed in making will likely be offset by increased carbon emissions in other parts of the world, whose economies are seeking to catch up with the level of industrial development and economic well-being presently enjoyed in Europe.

Against this background, this paper sketches a more radical response, focusing upon an actor in the economy, hitherto largely avoided by the EU policy-maker, by placing central responsibility upon the European consumer. It would work by extending a market-based approach, similar to that found in the ETS, to individual households by creating a market in tradable personal carbon allowances. The idea would be to require European consumers, when purchasing goods of a non-carbon-friendly nature to hand over – on top of the nominal purchase price – an amount of carbon permits reflecting the product's carbon-impact. Such permits would, mirroring the existing ETS, be pre-allocated to each EU household, with the option for surplus permits to be traded by them on a specially created market.

At first sight, such a scheme may appear vulnerable to various objections. However, it will be argued that, if well-designed, it has significant advantages that outweigh the downsides: it could empower consumers, underwrite green responses by producers and, not least, serve as a morally sound approach to climate mitigation beyond Europe for the world at large.

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A. Introduction

The European Green Deal contains a number of inventive measures designed to achieve the reduction in carbon dioxide and other GHGs¹ to enable the EU to meet its 2015 Paris Treaty Commitments. In the process, the EU remains committed to a continued policy of economic growth, believing that this can be ‘decoupled’ from environmental protection measures, so as to allow both to be pursued simultaneously. In support, the Commission cites statistics recording 62% growth in the EU since 1990 at the same time as a 24% drop in carbon emissions.² The Green Deal, by ramping up existing carbon-cutting measures, and adding further refinements, appears on course to achieve the targeted 55% reduction by 2030, and ‘net zero’ by 2050.

Considered thus in isolation, the Green Deal seems to offer a narrative of progress and potential. The problem is that climate change due to carbon emissions is a global issue. In this regard any success in reductions achieved by the EU as a world region must be assessed by how far it contributes to and reinforces world reductions. Here, unfortunately, it is a very different story: estimates following the Glasgow COP26 in November 2021, are that there is little or no chance of meeting the required reduction targets by 2050 to keep global temperature rises around the 1.5 mark regarded as ‘safe.’³ Indeed, it appears that in many parts of the world, as developing economies grow and produce more wealth and products for their consumers, carbon emissions will grow significantly. From this perspective, whether or not the EU succeeds in meeting its own targets through the ‘Green Deal’ may almost be seen as an irrelevance: the EU overall presently contributes some 8% to the annual amount of carbon emitted into the world atmosphere⁴ – if that falls to 0% by 2050, it will have little effect in reducing climate change if the rest of the world’s emissions are unabated or (as seems more likely) rise.

In the light of the EU’s relative wealth and power, as well as its historic responsibility as a region for much of the carbon now in the global atmosphere, there is an onus on Europeans and the EU to do more. In fairness, the EU acknowledges this extra responsibility: it seeks to provide a leading voice at COP negotiations in support of emission targets, as well as providing aid and technology to third countries help them to cut

1 Hereafter “carbon” is used in this paper as shorthand for CO₂ plus other key GHGs.

2 *European Commission*, 2021, p 2.

3 *IPPC*.

4 *European Commission* 2021, p. 12.

their emissions.⁵ Nonetheless, there is another aspect to increasing global carbon emissions, where European responsibility is direct and ongoing: this is that many of the consumer goods that Europeans rely upon are produced and transported from developing economies in carbon-intensive ways. Under COP carbon accounting methods, such emissions are assigned to the country of production, but they might just as plausibly be assigned to the country of consumption: the relevant goods would not otherwise have been produced.⁶

Against this background, this paper presents the case for augmenting the Green Deal with a more radical approach to reducing carbon emissions within the EU, but with the potential to bring down emissions outside the EU as well. The approach would operate alongside, while building upon, proven existing policies: in particular, it would deploy the same kind of market-based regulatory approach as the ETS, but extend it to the EU consumer. Accordingly, Part B. below first looks further at the logic of the ETS approach, before some previous (academic and governmental) proposals to apply it to consumers as well, in the form of ‘personal carbon trading’ (PCT), are reviewed in Part C.

The PCT scheme put forward in the present paper is novel to some degree, in that its key focus would be ‘indirect’ carbon emissions arising from consumption of goods, rather than the ‘direct’ consumer emissions targeted by earlier schemes. This difference is explained further in Part D., which also provides an illustrative account of how the proposed scheme might operate. Part E. then proceeds to consider various objections to PCT schemes, based on their alleged difficulty or unfairness for consumers. Part F. goes on to consider further implications of the proposed scheme, including its potential to influence carbon emissions beyond the EU, before Part G. concludes the paper.

B. The ETS and market-based approaches to reducing carbon emissions

Among the key measures credited with helping to bring about reductions in carbon emissions within the EU since 1990 is its Emissions Trading Scheme (ETS), which has operated since 2005.⁷ There, the EU has shown itself open

5 *European Commission* 2021, p. 13. The Carbon Adjustment Border Mechanism announced there may also incentivize some carbon reduction outside the EU; the proposal in this paper would add to this.

6 *Druckman/Jackson* in: Clift/Druckman, p. 181, 183.

7 *European Commission* 2015, p. 4.

to the use of market-based regulatory measures that promote carbon emissions reduction: such measures differ from the more traditional ‘command and control’ approach of setting uniform emission limits for a given activity from above (and imposing penalties for excess emissions), by leaving it to the actors themselves to determine the most efficient way to manage their emissions consistently with pursuing the relevant activity.⁸ This approach has been sometimes been criticized on the grounds that the ‘right to pollute’ is not something that should be tradeable in this way. However, it recognizes that carbon emissions are a byproduct or cost of activities otherwise regarded as valuable by individuals and society.

In such a scheme an overall cap is set on permitted emissions in a given carbon-emitting industry, and emission permits then allocated to individual actors in the industry in line with their historic emissions. The overall cap is subsequently reduced periodically over time, with the number of permits granted to individual actors at the start of each successive period, decreasing pro rata. At the same time, the actors are provided with an incentive to reduce their individual emissions, where they can reasonably do so, through allowing them to sell left-over permits (out of their initial grant) to other actors who are less successful in achieving reductions.⁹

In the case of the EU ETS, the relevant actors initially allowed to trade permits in this way were large-scale manufacturers and energy-suppliers, with the aviation industry partially added from 2012.¹⁰ The scheme experienced a number of teething problems, requiring legislative adjustment, in particular to achieve stricter control and oversight over the distribution of permits to actors at member state level;¹¹ however, it is now considered to be operating well. Indeed, it has established itself as the EU’s ‘flagship’ approach to reducing carbon emissions, and hence tackling climate change. Accordingly, under the Green Deal, it is set to be extended to further key sectors that produce GHG emissions, notably transport and buildings.¹²

By contrast, so far off the EU’s political agenda has been the idea of extending such an approach ‘downstream’ so as to cover not only industrial producers of carbon, but the end-consumer of goods, whose production and transportation entails the emission of carbon. This idea, so-called ‘personal carbon trading’ (PCT), has been dismissed as overly radical – both too complex to administer and politically infeasible (unable to win enough

8 Kingston/Heyvaert/Cavoski, p. 139.

9 Kingston/Heyvaert/Cavoski, p. 139.

10 European Commission 2015, p. 20.

11 Kingston/Heyvaert/Cavoski, p. 291.

12 European Commission 2021, p. 6-7.

public support).¹³ However, given the present situation noted in Part A., an approach of this kind arguably deserves urgent reconsideration.

C. Personal Carbon Trading

In the original Commission 2000 Green Paper that prefigured the establishing of the ETS, the authors alluded to PCT as a possible policy option, but dismissed it for the time-being:

“Allocating allowances, monitoring emissions and enforcing compliance of small mobile emitters, such as private cars, raise complex technical and administrative issues. Consequently, if the Community wishes to follow a prudent step-by-step approach in the development of emissions trading, it should initially confine itself to large fixed-point sources of carbon dioxide, where monitoring and supervision of the system is more feasible.”¹⁴

Some years later, there was political interest in such an approach at (former) member state level, namely in the United Kingdom. This culminated in a UK Government pre-feasibility study published in 2008 by the Department of Environment, Food, and Rural Affairs (DEFRA), which included the following helpful explanation:

“What is Personal Carbon Trading?”

Personal carbon trading requires individuals to manage their own CO₂ emissions; a national emissions cap would be set, and emissions rights (in the form of carbon credits) would be allocated across the population as a whole. Individuals would surrender their carbon credits upon the purchase of, for example, electricity, gas or transport fuel. Those who need or want to emit more than their allowance would have to buy allowances from those who emit less. Over time, the overall emissions cap (and hence individual allocations) could be reduced in line with international or nationally adopted agreements.”¹⁵

In the event, though, the DEFRA study decided against the UK Government pursuing such a scheme. As it concluded:

“The Government maintains its view that personal carbon trading is an interesting idea, but considers that the concept is currently ahead of its time.”¹⁶

13 *Parag/Fawcett*, Energy and Emission Control Techniques 2014, p. 23, 30.

14 *European Commission* 2015, p. 10-11.

15 *DEFRA*, p. 1.

16 *DEFRA*, p. 4.

Key disadvantages were seen as administrative costs, technical complexity, and low public acceptability. Similar to the 2000 Commission Green Paper, the authors instead suggested a focus on carbon emissions ‘upstream’, by targeting the manufacturers and service-suppliers who generate GHGs. This decision was ‘regretted’ by the Environmental Audit Committee (EAC) of the House of Commons, which, in a Report published shortly afterwards, commented:

“Opposition to personal carbon trading could be reduced if the public could be convinced of three things. First, that it is absolutely essential to reduce emissions; second, that this can only be achieved if individuals take personal responsibility for reducing their own emissions; and third, that personal carbon trading is a fairer and more effective way of reducing personal emissions than alternatives such as higher taxes.”¹⁷

Since then, PCT schemes have not returned to the political agenda. However, there remains ongoing academic interest, mainly in the UK, but also in other countries.¹⁸ Thus, it has been observed that the objections levelled against such schemes in terms of administrative cost and complexity have diminished in force since 2008. For example, thanks to developments in information technology, managing the administrative aspects of such schemes would now be a relatively straightforward matter. Importantly, too, as regards objections based on the alleged lack political acceptability of such schemes, there are reasons to think that public attitudes have shifted towards recognizing the inevitability of constraints upon individual carbon consumption, if climate catastrophe is to be averted.¹⁹

D. An ‘indirect emissions’ PCT scheme for the EU?

To date, most of the proposals and research done in relation to PCT schemes have sought to address ‘direct’ carbon emissions on the part of consumers, in the form of use of fuel consumption for household heating and energy, or for personal transport.²⁰ However, a second highly significant form in which individuals generate carbon emissions is ‘indirectly’, through the consumption of food and other consumable goods, where carbon is ‘embedded’ (mea-

¹⁷ House of Commons EAC, p. 19-20.

¹⁸ Nerini/Fawcett/Parag/Ekins, Nature Sustainability 2021; Woerdman/Bolderdijk, Eur J Law Econ 2017, p. 553.

¹⁹ Nerini/Fawcett/Parag/Ekins, Nature Sustainability 2021.

²⁰ Nerini/Fawcett/Parag/Ekins, Nature Sustainability 2021, with full references; an exception in part is Carbon Trust/Coca Cola, 2012.

ning it was emitted in the course of creating and transporting the relevant goods).²¹ Estimates in the literature vary as to the respective proportions of an average individual's carbon footprint attributable to indirect, as opposed to direct emissions, but a figure in the region of 50%, or half of their total emissions, appears plausible.²²

There are two key reasons why, from the perspective of the EU-policy maker, it would make sense to begin with a scheme that targets carbon emissions embedded in consumer goods. Most obviously, the setting of quality-control standards and further conditions for goods to be allowed to move freely around the EU single-market is a core EU-competence, whereas the supply to and use by individuals of fuel and energy (associated with direct emissions) remains primarily within the control of member states.²³ It follows that, for the successful implementation of the scheme, including the need to make derogations for special circumstances, e.g. to ameliorate potential hardship to individual consumers or groups, the EU would have a much freer hand for action in the former case. In the second place, it would address the point, noted in Part A., that the EU's present success in reducing carbon emissions is due in no small part to having 'exported' the problem to elsewhere in the world: this is returned to in Part E.

What, then, might such a scheme look like in practice? The starting point, similar to PCT schemes focused on direct energy consumption, is for each citizen or household to receive a monthly allowance of carbon permits that they would need to pay out (in parallel to the purchase price) when they buy specified goods of a carbon-intensive kind; the allowance would be based on the average expenditure of households in the relevant territory on such goods. So far as a household exhausts its allotted allowance it would, if it wishes to purchase more of the relevant good, need to buy excess permits from other households, which have purchased less than the average and hence have permits left over.

In the context of the EU, and so as to manage the scheme in an incremental way, the relevant territory for administering such a scheme initially could be the member state where the household is situated, i.e. 27 internal schemes would operate for each member state. In each case, a cap would be set on overall purchases of carbon-intensive goods in that state, which would, however, be tightened more rapidly in the wealthier than in the poorer member states, to encourage convergence in the degree of consumption of the relevant goods across the EU. Eventually, the scheme could then be

21 Druckman/Jackson in: Clift/Druckman, p. 181, 185.

22 Druckman/Jackson in: Clift/Druckman, p. 181, 189; *Hot or Cool Institute*, p. 6.

23 Under Art. 194(2) TFEU, member states retain significant sovereignty in the energy field.

centralized, so that allocations of carbon permits would be based on the EU average household consumption; at that point too, the market for trading in permits would be opened up, so that households wishing to purchase further such goods (beyond its initial allowance) could acquire the requisite permits from anywhere in the EU.²⁴

For example, suppose that initially, the scheme applies to a specified bundle of higher-end ‘carbon-heavy’ goods, including cars, furniture, electrical appliances, some foodstuffs (e.g. red meat) and aeroplane-travel;²⁵ suppose, further, that on average, German households spend 1500 Euros per month on these goods. Here, each household would be allocated 1500 carbon allowances (for simplicity, at least to begin with the allowances would not vary in price: one unit would need to be surrendered for each Euro of price paid). Suppose next that Household A exhausts its allowance half way through the month; it could either stop consuming the specified goods, or continue to do so by obtaining the requisite excess allowances from other Households; thus, to maintain its consumption pattern it would need 1500 further permits from, say Households B, C, and D, each of which only uses 1000 of its permits that month. Household A would thereby be paying double for the goods it consumes after the half-way point of the month (the purchase price, plus as much again for the necessary permits); in the process, Households B, C, and D would each earn 500 Euros. The latter could not, though, use this extra income to buy carbon-intensive goods, as they have parted with their relevant allowances (an important point, avoiding what economists call the ‘rebound effect’²⁶); but they could use it to purchase alternative, carbon-friendly goods.

This leads us to a further critical aspect of the scheme, which is its impact upon modes of production; among the types of goods covered by the scheme, not all would be treated alike. Certain models of cars, refrigerators, types of meat, etc., would be classified as more carbon-friendly than others, with the consequence that consumers would not have to pay out as many permits when purchasing them. This aspect of the scheme exploits the

24 Proceeding incrementally this way seems more socially equitable than immediately allowing wealthier income groups in each member state to pick where in the EU they may acquire additional permits (and reduces the risk of illicit trading in low priced permits).

25 Admittedly, plane-travel is, strictly, a service rather than a good. It appears desirable, though, to include it in the scheme from the start, to mitigate potential ‘rebound effects’: see the next note.

26 This occurs when consumers redeploy income gains from reducing their carbon in one area by increasing expenditure on other carbon-intensive goods or activities: *Druckman/Jackson* in: Clift/Druckman p. 181, 193.

fact that demand for most consumer goods is price-elastic: for each type of good there are, from the consumer perspective, various relatively acceptable substitutes available. An alteration in their relative price will then stimulate a shift in purchase patterns from one good of a given type to another.

For example, one could apply, in each market of competing goods, a three-fold classification (to keep things simple) into red-, orange-, and green-category goods, where purchasing the first category requires an outlay of one carbon permit per Euro of good-price; the second, half-an allowance; and the third, none at all. Here, to avoid the risk that certain essential goods, difficult to produce without carbon, became unacceptably expensive, a relative rather than absolute approach could be adopted in determining these categories; i.e. rather than being tied to the amount of carbon emissions per se, account could be taken of a given good's carbon league-table position in its market (e.g. the most friendly 20% goods could be graded 'green,' others still in the upper-50%, 'orange,' and those in the lower-50% 'red'.

These classifications would be subject to ongoing adjustment: the grading authorities would conduct regular re-audits, and respond to applications by individual producers for regrading. In this way, the scheme would stay dynamic and, crucially, provide ongoing incentives for producers to reduce the carbon-impact of their goods. By taking steps that lead to a green or orange classification for a good previously graded orange or red, they would significantly increase the potential market for the good (i.e. among consumers with limited carbon permits remaining). Existing initiatives that seek to influence consumer demand in a green direction, through ecolabelling and similar schemes, would thereby receive very powerful reinforcement.

E. Some Potential Objections

A common objection to PCT in general, is based on their perceived burdens for consumers, which it is claimed also make such schemes politically infeasible in a democratic system. The burdens, it is alleged, may arise in three main ways: first through the direct financial impact of such schemes, particularly on lower income groups; second, their administrative impact (including the need for privacy-impacting monitoring and surveillance measures); and third by deflecting attention away from the powerful actors (industry, commercial vendors) responsible for carbon-intensive production practices, to the relatively powerless individual consumer (so-called 'consumer-scapegoating').

Looking first at the financial implications of PCT schemes, they in fact have a strongly redistributive or progressive tendency: there is a positive correlation between income level and carbon consumption, such that in most cases it will be persons on lower incomes left with surplus permits that they will be able to sell to persons on higher incomes (consuming above the national average). Admittedly, there could be exceptions; thus, the 2008 UK DEFRA Study cited earlier, noted that:

“approximately three fifths of UK households would have more credits than they would currently need under a personal carbon trading scheme based on equal per adult allocations and a cap set at current emissions. The distribution is found to be progressive with 71% of low income households identified as ‘winners’ (more than enough allowances to meet their current emissions) and 55% of high income households ‘losers’ (insufficient allowances to meet their current emissions) Of the 2.1 million households that fall into the low income ‘loser’ category a high proportion live in rural areas, many live in larger-than-average homes, and the allowance deficit is driven by their heating rather than their transport emissions.”²⁷

As noted above, the DEFRA Study’s concern was with ‘direct emission’ PCT schemes, applicable to energy use. In fact, the problem – due to people being locked-in to systemic high-carbon energy use and unable to adjust in response to higher prices (demand inelasticity) would be much less likely in an indirect-emissions PCT scheme, as proposed in this paper, applicable to goods. Here, consumers, once they exhausted their supply of permits, would be faced with a choice –to spend more money, by buying additional permits, or to switch to low-carbon products for which permits are not required.

It is true that this might still be thought unfair to consumers with a particular profile, i.e. on low incomes with a penchant for high-carbon goods. Unlike persons on high incomes, who – if they wish – may acquire permits to continue to consume high-carbon goods, they have little real option but to make do with less-appealing (to them) low-carbon substitutes. However, this merely illustrates the truism, accepted in every market economy, that people can only purchase and enjoy goods legally if they have the necessary economic means.

Arguably, such a response may seem cynical – is it not a paradigm instance of disrespect and even exploitation of the poor to hold that the rich can simply pay them to pollute? This point was considered by the 2008 UK House of Commons EAC, which in its Report offered the following riposte:

27 DEFRA, p. 12.

“Such reactions...ignore the facts that at present the poor receive no cash for their deprivation and the rich currently pollute without paying anyone. Under a [PCT scheme], at least the poor would, on average, be paid for their deprivation. And, on average, it would be the rich who would be paying the poor in order to sustain their carbon-intensive lifestyles. [...] These facts do not make such a system perfect, ...[b]ut by starting from an equitable distribution of rights to emit carbon dioxide amongst the population, it is undoubtedly socially progressive.”²⁸

Another problem that some have seen with PCT schemes relates to the ‘double-counting’ they may involve. Thus, for schemes that focus on direct consumer carbon emissions, through energy and fuel use, it has been suggested that this is unfair as it is getting consumers to pay again for carbon emissions, which have already been paid for upstream by the producer (where they are covered by the existing EU ETS).²⁹ This point was also considered by the 2008 UK House of Commons EAC Report, which however remained doubtful as to how far such an effect would be unfair.³⁰ Indeed, given that it is two discrete parties who are called on to pay, it is not immediately clear why it should be. Admittedly, the producer might seek to pass its part of the costs on to the consumer by raising the price, but only if it were confident the latter would still buy the product. In any case, there again appears less scope for this phenomenon to occur in PCT schemes directed at consumer goods, given their greater price-elasticity.³¹

The second main concern mentioned above as to the impact of such a scheme on consumers, is that they would find it too difficult and time-consuming to manage. In fact, though, as pointed out in evidence to the House of Commons EAC Report, it would be possible to design a scheme so as to minimise the administrative burden on the consumer. The trading process could be fully automated, with no need for them actively to participate:

“An individual will have a certain balance in their carbon account. When they make carbon purchases, allowances are surrendered from this account. If the individual’s carbon account is empty, allowances must still be surrendered at point of purchase. The retailer will automatically buy carbon allowances on the customer’s behalf, and surrender them immediately. The cost of the carbon allowances bought in this way will be added to the amount paid by the customer. The customer does not have to actively search for extra allowances...”³²

28 *House of Commons EAC*, p. 30, citing evidence from the UK Centre for Sustainable Energy.

29 *Woerdman/Bolderdijk*, *Eur J Law Econ* 2017, p. 553, 561.

30 *House of Commons EAC*, p. 15.

31 Compared to PCT schemes that target direct emissions from energy use, there is arguably less potential too for overlaps with upstream ETS measures.

32 *House of Commons EAC*, p. 23.

A related administrative concern, though, points up possible privacy issues: to keep track of individual carbon allowances, and how they are deployed, would there not need to be a massive surveillance apparatus, intruding into sensitive areas of people's lifestyles? Again, though, a well-designed scheme taking advantages of advanced IT security and privacy mechanisms should be able to deal with such concerns.³³ There would be no need to link identified individuals to specific purchases for any longer than the moment of transaction; all that subsequently would need to be known (and could be stored securely locally, e.g. in an app on the individual's smartphone or on a 'carbon card,' not in a central database) is the number of permits that remain on the consumer's carbon account.³⁴

The third kind of objection to PCT schemes based on the wish to protect the consumer, involves the belief that they serve to encourage 'consumer scapegoating.' Thus a criticism sometimes levelled at 'green-label' type schemes, is that, while appearing to give consumers a choice to purchase more environmentally friendly goods (and blaming them for not doing so), the 'choice' is in fact illusory: the consumer's purchasing habits are formed by deep factors, many beyond conscious control, and they are unable, given informational paucity, to assess the merits of a new choice for a given green-labelled product.³⁵ Instead, it is urged, green initiatives should focus on holding accountable the more powerful players – manufacturers, wholesalers, situated higher up in the production chain.

There are two things that can be said here. First, while it is certainly the case that at individual level, consumers are relatively powerless, so that it is not appropriate to saddle them with (individual) responsibility for the proliferation of carbon-unfriendly goods on the market, this does not hold true at the collective level. At the latter level, there is even a sense in which consumers (rather than producers) bear primary responsibility: as Adam Smith once stated, "consumption is the sole end and purpose of all production".³⁶

Second, the effect of a PCT scheme, as sketched in Part D., would be precisely to empower consumer choice at the individual level: a single straightforward EU-wide labelling scheme tied to the relative carbon-friendliness of competing goods in a given market, would provide clear information to compare one specific characteristic of the goods (contrast, the present variety of labelling-schemes for different classes of good, applied by multiple

33 *Woerdman/Bolderdijk*, Eur J Law Econ 2017, p. 553, 566.

34 *DEFRA*, p. 16.

35 *Akenji*, Journal of Cleaner Production 2014, p. 13.

36 *Smith*, Book IV, Chapter 8, 49.

bodies and focusing on diverse characteristics).³⁷ Moreover, the consumer would have the assurance that their choice for a given green-labelled product is not a futile minority gesture (nullified by the continued preferences of the majority for red or orange goods), but that, due to the dynamics of the PCT-system, including its financial incentives, they are acting in concert with millions of others to make a genuine difference to carbon emissions. In this context, the UK House of Commons EAC observed in its Report:

“One of the key strengths of a personal carbon trading scheme would be the incentive of saving (or even gaining) money by cutting personal emissions. Carbon accounts and statements, [and] receipts at point of purchase..., would show the positive results of a change in behaviour. As well as penalising those who emitted carelessly, [the] scheme would reward those who were making the effort to change.... The combination of incentive and visibility could be a potent mix for ensuring engagement in the scheme.”³⁸

F. Wider Implications of the Scheme

Arguably one of the most significant aspects of a PCT scheme of the kind proposed above is its potential to reduce carbon emissions arising from the production (and shipping) of consumer goods not only within the EU, but also beyond. This point appears most clearly when one recalls that, as noted in Part A., a significant reason for the EU's success in reducing its total carbon emissions since 1990 is by exporting the problem: the goods today consumed in ever greater numbers by the EU consumer are increasingly manufactured in countries like China or India.³⁹ On the conventional basis of carbon accounting, the emissions then show up in the balance sheet of the producing country, not in that of the EU, even though the goods were made to be consumed here.⁴⁰

In Part A., it was left open whether this allocation of responsibility is appropriate. However, ultimately there is no need to decide. Rather, what is key is the power it gives to the EU, through introducing a PCT internally within its territories, to influence production and transportation processes

37 Potential consumer responses to the carbon-labelling of goods in the context of a PCT scheme are surveyed in *Carbon Trust Advisory/Coca Cola*, p. 21.

38 *House of Commons EAC*, p. 10.

39 According to one study, reliance on Chinese imports meant UK carbon emissions for 2004 were 11% lower than if the relevant goods had been produced domestically: *Druckman/Jackson* in: Clift/Druckman, p. 181, 184.

40 *Druckman/Jackson* in: Clift/Druckman, p. 181, 184.

in a positive (carbon-reducing) direction across the globe. This is critical given that, as also noted in Part A., carbon emissions from the EU itself (on the conventional accounting basis) only make up some 8 per cent of total world emissions. The new Carbon Border Adjustment Mechanism (CBAM) announced in the Green Deal, will seek to address the carbon embedded in EU imports of key raw materials;⁴¹ complementing this with a PCT scheme that targets consumer goods has the potential to be even more effective.

In particular, as matters stand, it is likely a large proportion of consumer goods imported into the EU from third countries would receive orange or red classifications, shifting demand away from those goods. In response, importers into the EU would be incentivised to alter their supply sources towards producers in the third country who adopt lower-carbon-emitting processes. In the light of the size of the EU market, this would provide a strong impetus towards greener production there; indeed, since many of the relevant producers would at the same time be supplying goods for their own domestic markets, it could have positive knock-on effects on consumption dynamics in those markets too.

A concern at this point may nevertheless be that the economies in developing countries would be negatively impacted to a disproportionate degree: countries geographically distant from Europe would be unable to compete in terms of 'greenness' with products made close to or within the EU, not least because of the additional carbon emissions from shipping the goods. Admittedly, this might in part be offset by greater green innovation in the transport sector (a desirable outcome, given that sector's present contribution to carbon emissions across the world).⁴² But some competitive disadvantage would likely remain, with the risk of cementing current, troubling global wealth inequalities.

Fortunately, the PCT scheme sketched above has itself the potential to operate as a means of reducing these inequalities, namely by reason of its scalability. Here, it should be recalled that in Part D., when discussing how carbon permits for consumer goods should be allocated within the EU, it was suggested this should occur differentially according to member states' respective levels of consumption. Thus, in wealthier states, where consumer historically purchase higher amounts of carbon-intensive goods, the initial number of permits would be higher than in poorer states, where average past consumption levels were lower. It was proposed further that the respective caps on permits should subsequently be reduced at different speeds,

41 *European Commission* 2021, p. 12.

42 Carbon emissions from freight were estimated in 2015 to account for over 7% of total global emissions, with this figure set to increase: *OECD/International Transport Forum*, p. 3.

falling fastest in the wealthiest member states, so the level of permits per capita is ultimately the same throughout the EU. At that stage, too, the permit market would be made EU-wide, to allow trading between consumers across all member states.

Importantly, there is nothing in principle to stop the above process being continued further, so as to apply beyond the boundaries of the EU. Thus, once average per capita consumption in the EU of carbon-intensive goods were brought down to the average in the lowest-consuming EU member state, a next step could see the EU enter bilateral treaties with third countries, whose consumption of such goods remains lower still. These would allow EU consumers to acquire the carbon permits they need, if they wish to purchase goods above the EU average from citizens in those other countries. In return, and to avoid rebound effects, the treaty would require their governments to introduce the same system of grading consumer goods according to their carbon-intensiveness (and permits to acquire them) as in the EU. The approach could be successively scaled up (using a gradually reducing cap), helping to reduce both wealth inequalities and global carbon emissions.

G. Conclusions

It is suggested that a PCT scheme focusing on carbon emissions embedded in consumer goods, as proposed in this paper, has a number of strengths. Its intuitively plausible starting point is that each individual has equal rights (and responsibilities) regarding the carbon they contribute to the atmosphere. By assigning these rights, while enabling consumers to trade them, it incentivizes the purchase of goods with less carbon impacts than competing goods. At the same time, consumers are made aware of their own contribution, while being empowered by the knowledge that their choices operate within a collective framework to reduce overall emissions. For their part, producers are incentivized to innovate to reduce the carbon emissions from the goods they market. Last but not least, the scheme has significant potential to exert effects in non-EU countries, by encouraging the carbon-friendly production and transportation of goods, intended for import into the EU.

Much of the detail of how such a scheme would operate in practice naturally stands in need of elaboration. An incremental and iterative process appears essential to dovetail it effectively with other existing policies, while learning from mistakes and pitfalls that arise along the way. At the same time, past objections to PCT schemes, in particular on the basis they unfair-

ly target consumers, can be seen to be misplaced. To conclude, there is a strong case for the EU to add a PCT scheme of the kind proposed to the rest of the Green Deal.

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