A dual-track transition to global carbon pricing: the glass is half full
Rejoinder to Erik Haites

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1. Introduction

We appreciate the response by Erik Haites (2020) to our paper (van den Bergh et al, 2020a), not only because it is well-informed and contains many subtle remarks, but also because our article was aimed at stimulating debate on how to achieve effective climate policies that limit global warming change to 1.5-2°C. There is no question that the latter represents a tremendous challenge for the global community, and our dual-track proposal is intended to provide a workable approach to it by addressing the free-riding problem through policy harmonization. Although we feel that Haites raises many relevant points regarding the difficulties of carrying out the proposal, most of these were, in fact, already addressed by our paper. Unfortunately, he does not recognize the proposal's strengths, while in particular disregarding or downplaying the second track of redirecting UN negotiations to carbon pricing, which is key to the overall feasibility of the proposal. More generally, Haites considers the end goal too much as a static policy design issue while giving little credit to the gradual, multi-stage transition nature of our proposal, which we argued to raise political feasibility.

In addition, Haites' rejection of our proposal implies that either (1) a superior (unidentified) mechanism exists or can be developed to achieve global policy harmonization; or (2) countries will unilaterally and voluntarily implement sufficiently strong climate policies to rapidly reduce carbon emissions, that is, without policy harmonization. The latter is essentially the approach of the Paris Agreement. Both past experience and relevant academic research indicate that this is extremely unlikely to yield the desired outcomes, given that climate solutions are hampered by free-riding between countries (Barrett, 2018). Our starting point, based on these prior works, was that political leaders need to work on overcoming the free-riding problem by harmonizing policies. Only afterwards can they take the next step of strengthening policies gradually. We explained that carbon pricing is by far the best approach to operationalize the global harmonization of policy, implemented with either carbon taxes, trading markets (cap-and-trade), or a combination. We are open to arguments that identify other instruments with which policy harmonization and stringency can be realized. Note that such an alternative plan should not only clarify instrument effectiveness and efficiency, but also in what way it controls rebound and leakage, and how it fares in terms of political feasibility. In the absence of an alternative proposal, we therefore disagree with either possible implication of Haites' rejection.

We do not claim that our approach will be easy to achieve. In fact, we do not perceive *any* easy approach to achieve climate policies worldwide on the scale that is urgently required, and continue to believe that the two-track proposal is stronger than the alternatives. So, if Haites says "The concept is conceptually elegant but, I believe, doomed to fail in practice." we are inclined to respond: then keeping global warming below 2°C may be doomed to fail. Below we respond to the specific concerns of Haites.

2. Complexity of domestic mitigation policy

We agree with Haites that the diversity of current domestic policy mixes complicates matters, not just for global carbon pricing but for any harmonized and hence stringent global policy. However, one should not take current policy mixes as permanent. They are far from optimal and will inevitably change over time when it will become clear that they fall short of reaching emission targets. Current policy mixes tend to focus overly on "enabling" voluntary emissions reduction (terminology from Bulkeley and Kern, 2006) in the form of information provision or adoption subsidies, at the expense of regulation of firms and households through strict carbon-emission standards or carbon pricing. This holds not only for national policies but also for local policies (van den Bergh, 2020). To realize needed emissions reduction, the policy mix has to become less complex, focusing more on regulatory effectiveness. This will ensure that the overall policy can be more easily assessed and compared among jurisdictions, in turn aiding harmonization and strengthening.

We further agree with Haites that, in an early phase of the dual-track transition, multiple interacting policies may cause carbon prices to still vary across jurisdictions, also – as argued in our paper – to accommodate differences in per capita GDP. In later phases, though, maximum convergence should be strived for. Any policy mixes at this stage should be designed with three considerations in mind. First, although there are indeed important positive synergies among

certain instruments as stressed by Haites, other instrument combinations overlap or involve negative synergies. For example, the latter has been noted to occur between emission standards, renewable energy targets or adoption subsidies on the one hand, and carbon markets on the other (Fankhauser et al., 2010). Second, each additional policy instrument creates extra transaction costs of associated political and policy implementation processes, additional costs of monitoring and control, and sometimes serious budgetary sacrifices, such as in the case of innovation and adoption subsidies. And third, stringency of complex policy mixes is hard to compare among regions and countries (Schmidt and Sewerin, 2019), which in turn may limit their international harmonization (Howlett et al., 2017). It is surprising that this latter point is not stressed more in the literature, given the global setting of climate policy.

All in all, our proposal is to design a climate policy with minimal complexity, focused on instruments that well complement carbon pricing and possibly even create positive synergies with it (van den Bergh et al., 2020b). Looking back, perhaps we did not stress this simplification of national policy mixes enough in our paper. We did, though, explicitly mention that carbon pricing should replace as much as possible existing fuel and energy taxes, as this will lead to more transparency and international comparability, as well as more precise incentives for carbon emissions reduction. Of course, additional fuel/energy taxes may still be warranted to address non-climate externalities of fossil fuel combustion, notably those associated with local pollutants.

3. Technical challenges raised by an international carbon price

We welcome the points about linking ETSs to achieve uniform prices. As Haites indicates, such linking is fairly simple, as illustrated by experiences in Europe and North-America (Haites 2016). To be successful, ETS designs should indeed be similar. This does not seem an insuperable barrier, since countries will learn from experiences of other countries, so that convergence of designs is likely. As Haites recognizes, common minimum prices may be part of early transition phases, but not a final outcome.

We fully agree that there is limited practical evidence for international tax coordination, although corporate tax harmonization has been on the agenda of some jurisdictions (Bettendorf et al., 2010). Hence, international negotiations might have more success if focused on carbon markets. However, it seems that markets can still count on more resistance from social scientists and policy advisors than taxes (see, e.g., Rosenbloom et al., 2020; and a response to it by van den Bergh and Botzen, 2020). On the other hand, a carbon tax applied at the source would imply a relatively small number of countries or firms involved (Heede, 2014) and thus limit the coordination challenge. While we understand Haites' argument that national taxes are not updated frequently, our proposal is to make regular updating part of the coalition, and ultimately global, agreement. This would be consistent with the widely accepted gradually rising carbon-price path over time (or a cap reduction path).

We appreciate the remark that effective and not nominal tax rates are to be coordinated. As part of this, it would be good and even necessary for current energy and fuel taxes to be replaced by a carbon price, for two reasons: this makes policies more easily comparable between countries; and it leads to a more effective incentive for reducing carbon emissions, as current energy/fuel taxes are very often designed to achieve other objectives and thus are not aligned with carbon content of energy carriers (OECD, 2019). Exchange rates, implementation dates and other issues also need to be agreed.

We differ on the point that countries' agreement about annual tax rate increases will become exponentially more difficult as the number of countries involved grows. This is true for instantaneously negotiating a carbon pricing agreement among countries. But we instead propose a *gradual* transition involving a coalition or club: the initial club will evidently consist of a limited number of likeminded members with high ambitions, who are willing to negotiate a carbon pricing agreement. As we argued in our paper, any additional members will come on board gradually, and face an existing coalition agreement about carbon price harmonization among current members which would already specify rules. Moreover, potential new members will feel moral pressure as well as a potential reputational effect of the coalition at UNFCCC meetings. It is our feeling that Haites considers the end goal too much as a static policy design issue while downplaying the gradual transition nature of our proposal.

4. Limitation of border carbon adjustment as an incentive to join the club

We are somewhat surprised by Haites critique on the border carbon adjustment, as we already say in Section 2.3 (van den Bergh et al., 2020a): "One might wonder why border carbon tariffs have not been tried yet. The simple answer is that countries are understandably fearful of this, and, aside from a handful of major players such as the USA, China and the EU, few have the economic and political power to do it on their own: a coalition is needed to create a critical mass." To Haites' remark "It is striking that no jurisdiction has yet implemented a BCA." the simple response is then: no, it is not striking, because only a carbon pricing coalition would be able to do this, and such a coalition does not yet exist. Interestingly, the only significant group of countries that could be interpreted as a carbon pricing coalition, namely the EU with EU-ETS, has announced its intention to implement a border carbon adjustment (as we noted in Section 2.3 of our paper), which supports our argument. This plan was recently endorsed by IMF chief Kristalina Georgieva. In addition, US presidential candidate Joe Biden has indicated that, if elected, he may introduce a US carbon border tax.[1]

Haites makes several good points about emissions-intensive, trade-exposed sources. However, we do not see how these comments undercut our proposal. Regarding the comment "This is not a very strong incentive to join the club", our point was not that the decision to join the club will be completely based on a simple cost-benefit trade-off. Other factors may play a role, such as effects on stakeholders other than exporters, or national benefits of limiting climate change. In addition, we stressed that moral pressure, next to economic pressure, plays an important role. And again, something ignored by Haites: the second track allows the coalition to speak with a powerful voice at UNFCCC meetings, adding to moral pressure.

Regarding the initial composition of the carbon pricing coalition, we feel that Haites adopts again a rather static view. It is evident that the Unites States is currently not a likely candidate. However, if the upcoming elections were to put a new president in office, things might look brighter. In our opinion, Haites' statement that neither China nor the EU are currently ideal candidates to participate in an initial coalition comes down to the "glass being half empty". We instead think the "glass is half full": the fact that both are large players which already have an ETS represents an excellent starting point, especially given the favourable experiences with supra-regional/national integration – as argued in our paper and in Haites (2015). We agree that expansion might be slow as implementation of carbon pricing tends to be sluggish, but we do not see any fast-track integration alternative for other (effective) instruments. Moreover, by learning lessons and adopting proven best practices (as shown by recent ETS programmes, see Narassimhan et al. 2018), newcomers might well speed up implementation processes, especially if it means joining an existing supra-national carbon pricing scheme, rather than implementing a new one on their own. Each time a new member is added, more experience is built up regarding implementation and overcoming barriers, from which later members can benefit. Haites also stresses that currently not all emissions are covered by EU-ETS. This is true, but there is no fundamental reason why this could not change in the future. Moreover, various EU countries cover other emissions through an additional carbon tax. For all these reasons, we are more optimistic than Haites.

5. The challenges of implementing the dual-track proposal

We agree with Haites that the UNFCCC operates by consensus and some parties are opposed to market mechanisms. This was exactly the reason for us to include the first track of an expanding carbon pricing coalition, which would – as we noted – also be in line with the Paris Agreement. Nevertheless, there is obviously a degree of subjectivity in this assessment of how the situation would unfold, Haites again seeing the glass as half-empty and we as half-full. We feel this can be attributed to his giving less credit to the shift of international relations through the slow, gradual and dual-track transition process that we envision. In addition, we feel more weight should be given to our argument that negotiating a carbon price – versus technical standards or other instruments – implies a simpler and lower-dimension problem and reduces free-riding tendencies.

[1] https://www.climatechangenews.com/2020/09/17/imf-endorses-eu-plan-put-carbon-price-imports/

Haites makes a good point, though, that the negotiated carbon price should apply to both taxes and ETSs. Our view here is that in a transition phase, both instruments would inevitably be present. However, over time, convergence to one or the other would be likely and preferable. A first step in this direction would be creating a price floor in ETSs. The exact outcome is perhaps difficult to predict, although integration of countries in carbon markets has already been successfully achieved, and seems also easier to ensure than with carbon taxes (see Section 3 above). As long as both instruments persist, harmonization would be easiest by adapting the tax at times. This would result in approximate though not perfect harmonization, which is a considerable improvement over 'no harmonization at all' – as characterizes the current state of national climate policies.

Haites draws on a study for Canada by Rhodes et al. (2017) to state that the "carbon tax is the least popular climate mitigation policy, so increasing the tax rate is difficult". However, the same study finds that carbon taxes (and carbon trading) already enjoy majority support. Moreover, evidence from British Columbia suggests that the region's existing carbon tax has even become more popular over time, despite several increases of the tax rate (Murray and Rivers, 2015). Research has further demonstrated that policy support can be improved through various strategies, including labelling of the tax (Kallbekken et al., 2011), trial periods (Cherry et al., 2014) and recycling of the carbon-pricing revenues (Klenert et al., 2018), as discussed in Section 3.5 of our paper.

Finally, we are surprised that Haites claims that "the dual-track approach does not address the fundamental reason underlying the weakness of UNFCCC agreements; the incentive for free-riding." On the contrary, the essence of our approach is limiting and overcoming such free-riding.

6. Dual-track transition versus Paris Agreement

Overall, while appreciating Haites' comments, we do not regard them as undermining our proposal. According to him, "A more effective international mechanism to reduce greenhouse gas emissions is highly desirable. The dual-track proposal is not such a mechanism. Indeed, it might be a step backward." This statement suggests that the Paris Agreement in its current form, i.e. without policy coordination, might deliver more, if not sufficient, emissions reduction. This is, however, disputed by many, as noted in the four shortcomings and studies mentioned in the opening paragraph of our paper. In line with this, despite initial enthusiasm for the Paris Agreement one can now observe considerable scepticism about what it will achieve, from the media, politicians, NGOs and scientists (Allan, 2019; Greenpeace International, 2019). There is thus widespread concern that the Paris Agreement will only achieve weak and inconsistent policies that cannot be strengthened sufficiently over time due to the lack of policy harmonization. Many scientific studies have shown the shortcomings of the Nationally Determined Contributions (NDCs), suggesting they are far from sufficient to achieve the Paris temperature target (Höhne et al. 2017). It is even difficult to compare what pledges really mean in terms of future emissions – i.e. whether they reduce or increase these relative to a common base year. To overcome this lack of transparency, economists and scientists have undertaken various studies of the pledges, which have served to underscore their inconsistency and insufficiency (Aldy et al. 2016; King and van den Bergh, 2019; Liu et al., 2020).

Haites concludes that we must look for other ways to accelerate mitigation action, pointing to the process for strengthening NDCs within the Paris Agreement. However, this provides no guarantee for implementation of effective policies. Indeed, a recent assessment finds that all countries show a gap between ambition and implementation, except for a few with low ambitions (Roelfsema et al., 2020). This is unsurprising, as the Paris Agreement relies on voluntary emission reductions and is therefore highly prone to the free rider problem. To avoid muddling through, our proposal includes policy agreements and pricing incentives, and hence reduces reliance on voluntary action. In our view, Haites undervalues the importance of international policy harmonization – notably regarding regulatory instruments that are prone to free-riding and fears about competitiveness effects.

Finally, we would like to stress that the dual-track transition proposal does not imply dismantling previous commitments in the Paris Agreement, but instead represents a way to meet and strengthen these. Indeed, the agreement allows for the formation of clubs as discussed in

Section 3.3 of our article. We hope that those who are optimistic about the Paris Agreement will, after reading our article and the additional arguments presented above, also recognize the value of harmonizing national policies and the essential role that carbon pricing can play to achieve this. We remain open to alternative proposals, but for the moment continue to feel that the dual-track proposal provides a uniquely workable solution to the tremendous challenge of keeping global warming below 2°C.

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