Pricing Carbon.

A Climate Coalition as a Complement to UN Negotiations.

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Abstract

This paper analyzes insufficiencies in UN negotiations and identifies a set of characteristics that would make a complementary institutional design efficient. A coalition among nations with high climate ambitions is suggested. Such a coalition should introduce measures that leaders can control and be accountable for—measures that are short-term and few-dimensional, and that incentivize efficient reductions, prevent leakages to outside nations, and sanction non-compliance. A coalition should also provide incentives to outside emitters and encourage new members. A Climate Coalition that harmonizes minimum national carbon prices (i.e. carbon taxes), introduces a common carbon tariff, and welcomes new members would meet the criteria and have the potential to emerge at a global level.

Policy relevance

The paper demonstrates the need to develop complementary international climate policies to the Paris agreement. It analyses flaws of UN agreements and suggests a coalition among nations that are willing to introduce a price on carbon. By also agreeing on a carbon tariff, the coalition could create a mechanism that would enlarge the coalition and provide a global price on carbon.

Policy insight

- A consensus among all nations will be insufficient and determined by low-ambition nations, which explain the flaws of the Paris agreements.
- A complementary Climate Coalition among nations with high ambitions is needed to compensate for such flaws.
- A Climate Coalition should introduce efficient mechanisms and provide incentives for nations to belong to the coalition.
- By agreeing to an internal minimum carbon price and an external carbon tariff, a Climate Coalition would create such mechanisms, could eventually provide a global price on carbon.

Key words

Complementary design. Climate coalition, Carbon price, Carbon tariff, Emergent global carbon price.

Flaws in UN negotiations

Property rights and government regulations restrict the use of other resources, but our climate is a global common and free to influence by emitting carbon dioxide and other greenhouse gases. The lack of protective institutions, with reciprocity for the climate costs that emission cause, provides distortive incentives (Hardin, 1968, Nowak & Highfield, 2011). Time asymmetries (present costs for abatement, distant costs for climate change) and redistribution controversies (who shall pay for what) increase the complexities of the problem. A global solution is urgently needed, but how can global institutions develop that provides individual actors with appropriate incentives?

Early UN negotiations under the Kyoto Protocol aimed for a solution based on common commitment. Here one participant commits to contributing to the common good if other participants also do so. This way, a direct reciprocity is introduced that change incentives. Free riders are sanctioned and the individual self-interest is better aligned with the common interest.

However, the early UN attempt failed. It was not possible to reach a consensus, perhaps because negotiations also focused on quantitative reductions among participants, which was difficult to agree upon (Cramton et al., 2015). Instead, after many years of negotiations, in Paris 2015 a design with shared long term goals, national voluntary pledges, increased transparency and a plan for future reviews and negotiations was agreed upon. The agreement was celebrated as a large step forward, but will it be sufficient? Problems with the Paris agreement are that it is unclear what the participants must do to reach the common goals. There is no solution to the lack of reciprocity; free rider incentives and social dilemmas prevail. Furthermore, recurrent pledges and reviews risk to push participants into a “waiting game” where they see what others do before they make own commitments (Tirol, 2012).

One reason for the insufficiencies of the Paris design is that the UN negotiators have emphasized that all significant nations have to participate in an agreement. This approach could perhaps work if all nations shared a common interest and ambition. But interests and climate ambitions vary among nations and under such circumstances those with the lowest ambitions will be the ones who determine the outcome (‘Underdal’s law’, see Underdal, 1980). Today’s flaws in the UN agreement can be explained by this phenomenon. For example; it is easier for a group to agree on what all should accomplish together in a distant future than it is to agree on what costly actions each participant should pursue short-term. Likewise, it is easier to agree on a system with individual voluntarily pledges than on a coercive system with sanctions for those who do not comply.

To get all on board, UN negotiations have also opened up for distributional considerations and financial transfers based on arguments of fairness and equity, which increases the complexity. Should, for example, old and longtime emitters take more responsibility than those that started recently? Should large emitters take more responsibility than small? Should rich emitters take more responsibility than poor? If so, what is the fair amount of responsibility for a nation that is old/large/poor or new/large/rich, or old/small/poor? Allowing for compensation further increases the complexity of the problem and it provides incentives for rent seeking.

Variations in ambitions and variations in the choice of mechanisms used in national voluntary efforts also results in cost inefficiencies. Some nations will reduce emissions at higher costs than others, making global reductions more expensive than necessary. It will also cause trade distortions and

leakage problems since carbon-intensive industries in nations with low climate ambitions gain competitive advantages. Carbon-intensive industries in high-ambition nations have incentives to relocate to low ambition nations, or be replaced by imports from industries in low-ambition nations (Tirol, 2012). Hereby, citizens in high-ambition nations continue to contribute to climate change through imported products. There are also second-order leakage problems. If ambitious nations reduce emissions and their demand for fossil fuels falls, it will affect world markets and lower prices make fossil fuels more affordable in other parts of the world.

On the positive side, the Paris agreement provides a normative basis for taking climate change serious. It also increases transparency and provides a public arena for pledges and reviews. Nations can experience indirect reciprocity by a earning a reputation of being good (or bad) global citizens. Perhaps there can also be increased opportunities for altruistic punishment (Fehr and Gächter, 2002), for example, if consumers boycott goods from defecting nations. However, to put it mildly, it is uncertain if the Paris agreement will be sufficient for solving the problem.

Design characteristics of a coalition

Why did UN negotiations focus on a solution that involves all nations? To include all solving a problem that involves all might seem obvious and rational, but it is not. UN climate negotiations were inspired by the success of the Montreal Protocol, a voluntary agreement to save the ozone layer which had a limited economic impact and involved relatively few producers in a few nations (Victor, 2011). Saving the climate, on the other hand, has a large economic impact, affects producers and consumers globally and challenges important interests.

Rather than following the traditions of environmental diplomacy, climate policy should learn from international institutions that developed when stakes were high and when there were conflicting interests among nations. Compare to the development of institutions such as the WTO, NATO, and the EU. These institutions emerged among a selected group of nations sharing a strong common interest. They were designed to coordinate internal activities, but also to influence outside parties, to attract new members and to grow. The constructs were based on the insight that all nations do not share the same interests, that nations with similar interests can benefit from collaborating with each other and put pressure on outsiders. The WTO is probably the most successful example of an emergent global institution in a world of diverging interests. All nations share a common interest in promoting free international trade. However, there are different interpretations of how this should be done and free rider incentives and social dilemmas lead individual nations into protectionist positions. The WTO's solution did not focus on voluntary UN negotiations among all nations, but started in a coalition of nations with similar interests. Then, by allowing new members, if they accepted the rules, a mechanism was created that expanded the coalition to global coverage. The mechanism was self-enforcing; the more members, the more attractive it was to join the club.

Can a similar design be developed for mitigating climate change and be a complement to the Paris agreement? UN agreements allow the nations with low ambitions to set the standard. A complementary design should instead allow high ambition nations to lead. This could be achieved by creating a Climate Coalition among high-ambition nations. What other characteristics should such a coalition have? It is possible to identify ten characteristics of a climate coalition that would make it complementary to the UN agreement.

1. The UN agreement focuses on long-term common objectives. Short-term activities are for the individual nations to decide. *A coalition should agree on short-term activities for every participant to follow.*
2. The UN agreement is complex and multidimensional. Quantitative allocations of emissions and redistribution of incomes provide a multitude of dimensions to agree upon. *A coalition should focus on activities with few dimensions.*
3. The UN agreement encourages long term pledges that are outside the scope of control by today's decision makers. *A coalition should target activities that national leaders can control.*
4. The UN agreement builds on pledges that are difficult to measure and evaluate. *A coalition should target activities that can be measured and that national leaders can be made accountable for.*
5. The UN agreement allows for a variety of measures used by nations which results in different abatement costs and uncertainties for innovation. *A coalition should target activities that coordinate reductions among all nations in a cost- and dynamic efficient way, both related to production and consumption.*
6. The UN agreement does not sanction lack of compliance; free rider incentives prevail also among high-ambition nations. *A coalition should provide sanctions against non-compliance among its members.*
7. The UN agreement does not provide solutions to the leakage problem. *A coalition should prevent leakages of carbon-intensive activities from high-ambition members to low-ambition nations outside the coalition.*
8. Beyond possible reputation effects, the UN agreement does not provide reciprocity to nations that choose a low-ambition strategy, neglecting the risks of climate change. *A coalition should implement measures that provide reciprocity to low-ambition nations outside the sphere.*
9. Beyond possible reputation effects, the UN agreement does not provide incentives for low-ambition nations to change policy and become more ambitious. *A coalition should provide incentives to encourage low-ambition nations to change policy and join the Climate Coalition of high ambition nations.*
10. The UN agreement includes all, also nations with low ambitions, and has a mechanism that can lead to more ambitious reductions in the future. *A coalition should begin with a limited group of ambitious nations, and have a mechanism that can lead to more global coverage, transforming the coalition into a global institution.*

A Climate Coalition for a global carbon price

Among policy makers and economists there is a growing consensus that a global price on carbon is the most efficient solution to climate change (e.g. Mankiw, 2009). Carbon taxes or tradable carbon markets, or hybrids of the two, can introduce such a price. There are several arguments that support a carbon price. The climate is a global common, an open access resource free for all to exploit and a price is an efficient mechanism to correct this distortion. A price provides reciprocity and an incentive for all to reduce emissions. The result is globally cost-effective and, through new markets for improvements and innovations, it provides dynamic incentives with innovations and the required sustainable transformation. It also builds on existing institutions; tax bureaucracies exist in all nations and existing markets for resources can be extended to the trade of i.e. rights to carbon emissions.

Pricing emissions provide governments with income and an opportunity to reduce other, distorting taxes.

In a context of climate negotiations a carbon price has the advantage that it is less complicated to agree on, compared to a certain allocation of national quantities for reaching a total reduction (Weitzman, 2015). When agreeing on a price, the participants have to agree on only one dimension: the level of the price. When negotiating national quantitative reductions, many allocations are possible. Compared to negotiating quantitative allocations of reductions, negotiating a price is also less exposed to the free rider problem; a negotiator has incentives to argue for a small quantity for himself and large for others, but arguing for a low price for oneself will also give a low price to others (Ibid).

How can then a coalition of ambitious nations introduce a carbon price for its members, and how can that price become global? Here follows a suggestion: A Climate Coalition should be formed among today's nations that already have introduced carbon prices, or that are willing to do so, that is, nations that have carbon taxes and trading schemes, or hybrid measures, or are about to introduce such measures.

The Climate Coalition should then agree on a minimum price, a price floor on carbon emissions. To simplify negotiations and allow for national varieties, each member could be allowed to reach the price with a measure of their own choice (carbon taxes, price floors in carbon markets, or hybrids) and be allowed to make upward adjustments. Damages caused by carbon emissions vary locally, which justify higher carbon prices, for example health issues in urban areas (Gollier and Tirol, 2015).

An internal price on carbon should also be complemented with a coalition-synchronized price on carbon emissions from goods imported from outside the coalition. Such a price requires the members of the coalition to synchronize *carbon tariffs* on goods from outside the coalition (a border tax adjustment, see e.g. Tirole, 2012).

There are several strong arguments for combining national carbon pricing with carbon tariffs. Governments should price *all* national activities that cause such emissions, including emissions from imported goods. A carbon tariff on imports hereby complements national carbon pricing so that emissions from import are also priced, making carbon pricing symmetrical (see e.g. Helm, 2012). Further, governments that do not price carbon emissions provide a hidden subsidy to their industries since their producers do not need to pay for their climate costs, which cause leakage problems. A carbon tariff hinders the leakage of fossil-intensive production from nations that price carbon, and thereby increases the efficiency in international trade, which is in accordance with the intentions of WTO (Stiglitz, 2006). A carbon tariff also makes national carbon pricing more politically acceptable, calming those that claim that a price on carbon threatens jobs and growth. A tariff also provides revenues that, like carbon taxes, can be used for lowering other taxes.

Another argument for a carbon tariff is that free rider incentives threaten the stability of any coalition. Members need to know that they benefit from participation, that there are costs associated with leaving. Nordhaus (2015) argues that nations can share a flat tariff; it does not have to be linked to variations in carbon emissions, and calculates that a tariff for creating a stable coalition can be rather small, of the magnitude of 2 percent.

Finally, by adjusting the level of the carbon tariff to the level of emissions caused by the imported goods, producers in outside nations are also provided with an incentive to reduce carbon emissions and, perhaps most important; a carbon tariff would provide leaders of nations outside the coalition with a financial incentive to change sides and join the coalition. With such a shift an outside nation would escape the cost of paying tariffs and, as a member of the coalition, instead become a recipient of revenues from tariffs paid by outside nations. Hence, tariffs provide outsiders with an incentive to join the coalition and to price carbon emissions whether they care about the climate or not. The more nations that join the coalition, the larger the market is that has a carbon tariff, and the stronger the incentives for outsiders to join. This would start an escalating process, allowing a global carbon price to emerge.

However, there are of course also arguments against a climate tariff. Most important is the risk that outside nations retaliate and introduce trade barriers, escalating trade wars and protectionism. However, the risk of protectionism has to be balanced against the risks of climate change, and the latter are more devastating (Helm, 2012, Pindyck, 2013). Besides, retaliation is not a certain reaction. Outside nations may suffer more from a trade conflict than members of a Climate Coalition.

Another objection has to do with problems implementing a carbon tariff. Targeting fossil emissions from finished goods has to be based on estimates of carbon intensity (Hübler, 2012) which is difficult to assess, especially if parts come from many nations (Tirole, 2012). Therefore climate tariffs will be based on approximate measures of, for example, energy content or type of industry which will not be fully correct. However, allowing emissions for free can be argued to be worse and "It is better to be a bit right than exactly wrong" (Helm, 2012, p. 191).

Finally, a carbon price cause competitive disadvantages for exporters within the Climate Coalition. Should exporters be exempted from a carbon price? Such an exemption could be beneficial for the climate if exporters cause lower carbon emissions than outside competitors. (If exporters also supply goods within the coalition they probably use cleaner technologies). On the other hand, all taxes influence competitive advantages. For example, in labor-intensive industries taxes on labor hurt exports. Should then all export be exempted from all national taxes that diverge from outside nations?

In sum, a Climate Coalition should build on the following cornerstones. It should:

I. *Synchronize domestic carbon pricing policies in the Climate Coalition (carbon taxes, trade schemes, etc.) by the introduction of a minimum carbon price.*
II. *Synchronize trade policies and introduce a border tax adjustment among member nations. Introduce a carbon tariff on imports from nations outside the Climate Coalition.*
III. *Welcome outside nations to join the Climate Coalition on the condition that they pursue the same policies (I, II and III).*

This suggestion would adhere to the ten characteristics of a complementary design outlined earlier. The introduction of carbon taxes or trading schemes and a carbon tariff are activities that are implemented in the short term (1). Pricing carbon is a measure with few dimensions (2). National leaders can control taxes, trading schemes and carbon tariffs (3). The implementation can be evaluated, and leaders can be held accountable (4). A synchronized price is an efficient measure that reduces emissions at the lowest cost for society and provides dynamic incentives (5). A carbon tariff

sanctions those members of the Climate Coalition that are tempted to free ride and leave (6). It prevents leakage of carbon-intensive industries from the Climate Coalition to outside nations (7). It is a measure that incentivizes producers in outside nations to reduce their emissions in order to escape the tariff (8) and provides incentives for outside nations to change positions and join the coalition, thereby escaping the tariff (9). As the Climate Coalition becomes larger, it will provide outsiders with stronger incentives to join. The coalition also has the potential to emerge into a global institution (10).

Conclusion

UN climate negotiations include all nations, and consensus gravitates towards what is acceptable for low-ambition nations, as illustrated by the Paris agreement. Therefore UN negotiations need complementary institutions that compensate for the flaws. A coalition would increase the influence of high-ambition nations by introducing efficient, short term measures that provide reciprocity for affecting the climate; measures that national leaders control and can be held accountable for. Rather than long-term quantitative pledges, the introduction of a price on emissions would increase efficiency and provide dynamic incentives. Climate change is a global problem and a Climate Coalition should also aim at influencing outside nations, and at expanding its boundaries to a global coverage. A Climate Coalition with a common minimum carbon prize and a carbon tariff against outside nations could provide such a solution.

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