

Trade for Climate Justice?

A normative study on the possible justice conflict of an implementation of border carbon adjustments between developed and developing countries.

Abstract

Border carbon adjustment is an economic instrument being discussed more frequently as a possible solution to address carbon leakage, which is an issue for many developed countries. Developed countries are showing interest in this instrument to protect domestic industries from carbon leakage to countries that do not tax carbon. There is however concerns from developing countries that border carbon adjustments are protectionist and will have a negative effect on their economies. This paper studies the concept of border carbon adjustments from a justice point of view to determine if it can be considered to be a fair instrument in relation to developing countries. Three different principles and general discussions of justice within the case of climate change are used to determine the fairness of this instrument. The conclusion of the paper is that border carbon adjustments are in their current form not a fair instrument to implement on developing countries, as they will have a negative effect on their welfare and since developed countries are responsible for a greater proportion of historical emissions. Further research should focus on the design of border carbon adjustments to achieve a fairer design of border carbon without jeopardizing the welfare of developing countries.

Keywords: Border carbon adjustments, climate justice, trade, developed countries, developing countries.

Words: 9873

Acknowledgements

I would like to thank Jakob Skovgaard for his help and guidance during this semester.
Without his help this paper would not have been possible.

Lund, January 2019

List of abbreviations

APP: Ability to pay principle

BCA: Border carbon adjustment

Carbon: Used as short for carbon dioxide, the most prevalent greenhouse gas

CBDR: Common but Differentiated Responsibilities

CO₂: Carbon dioxide

GHG: Greenhouse gas

IISD: International Institute for Sustainable Development

IMF: International Monetary Fund

OECD: The Organization for Economic Co-operation and Development

PPP: Polluter pays principle

UNFCCC: United Nations Framework Convention on Climate Change

WTO: World Trade Organization

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1 Introduction

1.1 Background

Climate change is undoubtedly one of the most urgent crisis facing our planet. There are many different views and discussions on what the best way of dealing with climate change is, and how different policy instruments can be of help in climate mitigation. Economic policy instruments such as carbon taxes are a common phenomenon in many developed countries. One example of a policy instrument being discussed more frequently by developed countries as an instrument to deal with climate change and bring down emissions globally, are border carbon adjustments - BCAs. A BCA is an economic instrument that countries that tax carbon can tax imported goods from countries that do not tax carbon. Thereby decreasing the demand from these countries and hence creating incentives for these countries to reduce their carbon impact (Sakai & Barrett 2016). It can be discussed however how fair this is given the fact that a great deal of emissions in the developed world (where carbon is often taxed) actually takes place in developing countries where carbon might not be taxed. Whereas the carbon footprint per capita in these countries is often much lower than in developed countries (Wwf.panda.org, 2018). A great deal of CO₂ emissions are embedded into international trade, so even if products are produced in one country they might be consumed in another. Input and output models have been used to try and study the trade flows of countries to determine if countries are carbon exporters or importers. When looking at these studies one can see that developing countries such as China and India use a majority of their emissions for products that will be exported. While for example most EU countries are CO₂ importers (Hausfather 2017).

If we look at the emissions historically (not only the current emissions), this shows another perspective on countries impact on global warming. Since the industrial revolution we can see that the U.S is responsible for 29% and the EU for 26% of the emissions. If we on the other hand look at countries like China and India that might be considered big polluters today, they stand for 8% and 2 % when including historical emissions (Gardiner 2011 p.415). Today China and India are the first and third biggest emitters of CO₂ (the U.S being the second biggest) (Germanwatch 2017). Border carbon adjustments can be seen as a tax on developing countries but in reality it is the developed population who are responsible for consuming a lot of these products and driving up the demand. On the other hand, a border carbon adjustment might give initiative for developing countries to introduce a tax on carbon and other climate mitigation efforts to bring down emissions.

1.2 Purpose and research question

The purpose of this paper will be to closely study one of the policy instruments that more frequently is being discussed as one way of mitigating climate change, Border carbon adjustments (BCA). I want to study this policy instrument and analyze it through different perspectives, to discuss the problematic aspects versus the positive aspects of this policy instrument. The main theme of the paper will be the discussion if this policy instrument (BCAs) can be regarded as unjust or just with respect to climate justice. In the end of the paper I will conclude the different perspectives used in the analysis to study BCAs with respect to climate justice and try to answer the research question.

The research question I have found best suited for the given purpose is:

Are border carbon adjustments fair from a climate justice point of view?

2 Methodological approach

2.1 Normative method

The normative method is based on being able to in a scientific way problematize and argue rationally in questions concerning values. A large part of the meanings of important societal questions lie in their values, thus the normative method is of great value when researching these questions. The normative approach has faced criticism over the years for not being scientific enough, though today the approach is largely accepted. One criticism raised by skeptics of the normative model is that the method is not as reliable as the classical empirical approach. Badersten argues that this is not the case as both these approaches are based on different perspectives and values (Badersten 2006, p.5). In order to guarantee that this paper also can be viewed as reliable I will base my arguments in the analysis with the values and perspectives presented in the discussion framework together with the background information about BCAs. The arguments will not be based on my own opinions.

2.1.1 Internal validity

When working with a normative method, one of the main components to make sure the paper has a high validity is internal validity. The normative method is based on the use of different values, these are used to reason with the question at hand. For a normative paper to have internal validity it is important that the author clearly states and defines the different values which will be used to take a normative stance in different questions (Badersten 2006. p.73). Therefore, it is important for this paper that the normative arguments are well-grounded in the different dimensions and values that I will in advance define. I will define and present the principles as well as the more general discussions used to define climate justice in the analysis.

2.1.2 External validity

The external validity is the other main component that is important in a normative study to ensure high validity. External validity is achieved by claiming the use of certain values or principles in the analysis and why these are of relevance to

society (Badersten 2006. p.133). To achieve external validity in this paper I will therefore try to provide arguments for the relevance of the chosen values and why these are of importance to society.

2.2 Normative conceptual analysis

There are three main methods on how to conduct a normative analysis within the relevance of social sciences. These are; the normative conceptual analysis, the normative method in the classical meaning and the normative “*given that analysis*”. For this paper I have chosen the normative conceptual analysis given my opinion that of these three methods the conceptual analysis is the one most suited for the research question and given purpose. This method takes start by precisising and clarifying the different values, normative principles or normative concepts being used. The purpose of this method is to cast light on weaknesses and inconsistencies. The focus in this paper will be on using different concepts and principles within the discussion of what climate justice entails. The purpose with this form of analysis is not to take a stance for a certain side, but to try and demonstrate vagueness, uncertainties and inconsistencies in the definitions. Often this method is characterized by comparative traits, where different principles or values are compared to one another. By comparison the method can help show potential value conflicts. (Badersten 2006. p.43). This method was chosen because of its relevance of the research question and how it can help in the discussion of problematizing and analyzing the different viewpoints of the BCAs using the principles presented in the discussion framework.

3 Discussion framework

In this section which I have decided to call the discussion framework, I will firstly present some general discussions of justice within the context of climate change. Secondly, I will present three principles, these will together be used in the analysis part of this essay to help define climate justice and to answer the research question and the purpose of this paper. If BCAs can be seen as fair from a climate justice point of view. I will also include why these principles were chosen and are of relevance for the purpose of this research paper as well as why some of the discussion points presented here will not be included in the analysis.

3.1 Climate justice framework by Henry Shue

Henry Shue has created a framework for climate justice where he focuses on four questions to be answered and discussed when focusing on justice in accordance with climate change. The questions are as follows:

1. What is a fair allocation of the costs of preventing the global warming that is still avoidable?
2. What is a fair allocation of the costs of coping with social consequences of the global warming that will not in fact be avoided?
3. What background allocation of wealth would allow international bargaining (about issues such as (1) and (2)) to be a fair process?
4. What is a fair allocation of GHG (over the long term and during the transition to the long-term allocation)?

(Shue 2014, p.48)

The first issue to be raised is the question about how the burden of paying for avoiding global warming should be divided. Emissions from poorer and developing countries will probably continue to rise as a result of their economic development. Should these countries be required to limit their emissions just because their standard of living is increasing (but are still below the western standard of living)? Or should the richer part of the world that already has a greater standard of living reduce their emissions so that poorer countries still will be able to reach a high standard of living? Shue's standpoint is that it is not fair to ask these countries to give up economic development in order to lower the emissions of these countries. Requiring emission reductions from the desperately poor and not from people living in luxury is unjust according to an elementary sense of fairness Shue states. He also views it highly unlikely that developing countries would agree to giving up economic development to lower emissions. The solution therefore is to be able to lower emissions in one part of the world more than the increase of emissions in another part. The two components for the first issue of justice is to keep the development as clean as possible and the second to reduce emissions in rich countries (Ibid. p.50-51).

The second issue raised is the one of justice, how the dealing of human consequences should be allocated. There are according to Shue two ways to approach this issue. *To each his own* is the first one which states that any problems that arise in countries due to climate change is to be handled by the country that suffers from it. Shue argues that this is unfair since a majority of natural resources of poorer nations are under control of global companies operating everywhere. The problem raised here is that just because natural resources are being used in one country does not mean that it is controlled by that country. This approach is based on the assumption that one country cannot contribute to territorial harm on another country (Ibid. p.52-53). The second approach is *wait and see*, which as the name implies is to wait and see what problems arise due to climate change and act thereafter. Problems with this approach might be that not acting now is preventing solutions to future problems that can only be handled by preventing actions (ibid. p.54-55). Since the second approach presented by Shue is simply to wait and not act at all it will be excluded from the analysis. Given the argument that BCAs are a form of action taken to mitigate climate change.

The third question raises the issue of how question one and two can be viewed as fair by studying the background allocation of fair. The issue raised is that one needs to know what is fair in order to judge this. For nations to agree on some sort of deal there has to be a minimal standard of fairness that each party can agree upon. The problem is to decide the standard of fairness to be judged, this is the third dilemma (ibid. p.55-56). Since the three principles together with the general discussions of justice will be used as the background allocation of fair for determining climate justice the third question is irrelevant for this paper and will therefore be excluded from the analysis.

The last issue raised is the one of allocation concerning GHG. How should these be distributed amongst nations. In contrast to the two first questions which focus on money, the fourth question is focused on CO₂. As the world looks today the emissions are not distributed in a fair way, as developed countries emit more in relation to their population than developing countries do. A few rich countries with small populations emit more than the majority of humanity living in poorer nations. For emissions to be distributed more just than today it would need to be allocated more evenly than today. The per capita emissions in rich countries will have to be reduced and in developing countries they should be able to rise. Globally though they need to be reduced (Ibid. p.57-58).

3.2 International Justice

Climate change brings up many different dimensions and questions within the field of justice. Since climate change is a phenomenon that is not restricted by borders, it is thereby often discussed within discussion of international justice. One of the main themes within this discussion is the asymmetry of those who benefit from GHG-producing activities and those who will be most vulnerable to climate change. This being displayed clearly in statistics where one can see that about half of the current GHG-emissions originate from about one sixth of the

world's population from the historically developed countries. This results in the debate about climate justice as the polarization between the global north and south. Which raises the question of burden sharing; who should carry most weight when trying to deal with climate change? The countries that are still considered poor according to global standard will probably follow the same development path that developed countries have done, and fossil fuels are still the cheapest alternative for energy needed for economic growth in these countries. Which is why the usage of these will probably not stop in the short term (Baer 2011, p.323-325).

There are three main ethical questions that are central in the case of climate change case according to Baer. The first question focuses on targets; what limit should be set on GHG-emissions in order to reduce the harm caused by climate change. The second question focuses on allocation; how should the costs of the targets be distributed? The last question is about liability; what is owed, and by whom to those who will be put at risk or harmed by climate change — either in advance (adaptation) or after the fact (compensation)? (ibid p.323).

One of the philosophical questions of climate change being discussed is whether the rights and duties of people in one country also shall obtain people in other countries. This debate within the topic of *cosmopolitanism* has been primarily focused on the question if richer countries have obligations to poorer countries when it comes to economic justice (ibid p.325). An example of this is Simon Caney who has written about justice within the case of climate change. Caney who is a supporter of the cosmopolitan justice field, argues that there are certain universal moral values which are not restricted by borders or nations. Two principles within the cosmopolitan field are defended in particular. The first one being a liberal package of civil and political human rights, since these are seen as important for a person's right living a fulfilling life. The second one being the egalitarian distributive program. Which defends the right to substance rights, prioritizing the least advantaged and global equal opportunities (Caney 2005, p.263-265). GHG emissions are not restricted by borders and there is a well-known asymmetry between the highest emitters and the most vulnerable countries. And there is a consensus within the philosophers who have written on this topic that rich countries in accordance with justice should help developing and poorer countries reduce their emissions and aid them to adapt to climate change (Baer 2011 p.326). One of the main issues when discussing climate change and justice is the problem of allocation; how should responsibilities and emission reductions be distributed given the previous mentioned asymmetry between rich and poor countries. Several ideas have been discussed as a solution for this dilemma, though there is no clear indicator for what the best of these alternatives is (Ibid. p.328). There is a consensus however that developed countries given their larger emissions and wealth should be given a larger responsibility to pay for emission reduction and adaptation, this is in accordance with the CBDR defined by UNFCCC (UNFCCC 1992 p.4). This should not impede on developing countries as they work to achieve a higher standard of living for their own population. This however does not mean that there is a consensus on what policies should be implemented in order to deal with the issue of emissions. Baer also holds the opinion that the general discussion of climate justice might be acting as a break for serious reductions in emissions, since no country is going to take on more reductions than itself sees as fair (Baer 2011. p.332-333).

3.3 Historical emissions

Within the topic of justice and emissions is the question of historical accountability. If countries should be held responsible not only for the emissions which are emitted today but also for their proportion of emissions in a historical perspective (Baer 2011, p.327). Using historical emissions as an aspect when discussing emissions brings another dimension into the discussion since developed countries are responsible for a larger share of historical emissions than developing countries (as presented in the introduction, section 1.1). There are different views on the question if nations should be held responsible for their historical emissions. Some argue that this is problematic because some of these emissions were emitted before the risks of GHG emissions were known (Baer 2011, p.326). The cost of these historical emissions are also likely to have a disproportionate effect on developing countries. Given the effect that these emissions will have on countries that did not cause them there are two main approaches when discussing historical emissions and justice. The first one suggests that the countries who created the problem should also be responsible dealing with and finding a solution, i.e a claim that developed countries should have to pay for their historical emissions. The second approach focuses on earth's capacity to absorb man made emissions of carbon, this is seen as a common resource. This approach means that using historical emissions we can argue that developed countries have exhausted their capacity and therefore denied other countries the opportunity to use their share of this to industrialize (Gardiner 2010, p.14-15).

3.4 Polluter Pays Principle and Ability to Pay Principle

3.4.1 Polluter Pays Principle

The polluter pays principle (PPP) is a principle often mentioned when discussing justice and how to allocate responsibilities within the case of climate change. This principle is used to allocate costs of pollution prevention and to encourage rational use of environmental resources. The principle states that the polluter is to bear the expenses of the pollution that it is responsible for in order to ensure that the environment is kept in an acceptable state (OECD, p.12). PPP in simple terms means that the one who is responsible for the emissions should bear the costs that the emissions have on the environment. PPP is often applied on the case of climate change to determine how the responsibilities should be distributed. There are several possible interpretations of this principle though and questions needed to be addressed when using this principle. One of the main questions is who is the polluter? What level should the principle be focused on, for example if the

polluter is the country or if it's individuals? What should the payment entail? What are the payments for; current emissions or historical emissions? PPP is a fault-based principle, the polluter should pay since it was the polluter who polluted and therefore caused the damage. The payment creating a disincentive to pollute in the future (Shue 2014, p.60). I find this principle relevant for analyzing BCAs as it is often used in discussions of justice and climate change, as mentioned above. Therefore, it is of interest to use this principle to see if the concept of BCAs can be viewed argued as being just when using the PPP as an underlying allocation of fairness while also bringing in general discussions of justice within the case of climate change.

3.4.2 Ability to Pay Principle

The ability to pay principle (APP) is another principle that can be used in the case of climate case as a guidance for justice and fairness. This principle states that within the number of parties involved, the parties with the greatest resources should also contribute the most. APP is often based on progressive rates, i.e. the more resources a party has the more it has to contribute. The payments can also be proportional but often this is not the case (Shue 2014, p.186). Contradictory to the PPP, the APP is a no-fault principle. The factor of who is to blame for the GHG-emissions is not a factor here, the responsibility to pay is merely decided by the wealth of the party (Ibid. p.60). The important question when it comes to APP is to ask from whom the payments should come from and to whom, not where the payments would go (Ibid. p.64). I find the APP is relevant for analyzing justice concerning BCAs as it is in many ways contradictory to the PPP which as previously stated is often used when allocating responsibilities within the case of climate change. This principle is also frequently mentioned in the literature I have studied for this paper when discussing climate justice. Therefore, I find it relevant to use when analyzing BCAs from a climate justice perspective.

3.5 Luxury and substance emissions

Shue argues for a distinction when discussing GHG-emission between subsistence and luxury emissions, essential and non-essential emissions. Arguing that this approach is fairer than the least-cost option. The least-cost option implies that emissions that produce the least economic value should be the first to be eliminated. Luxury and substance emissions are based on the idea that some emissions are vital for living, while some emissions are not. An example of a non-vital emission is the one for luxury cars. The argument here is that it is unjust to demand that people lower their standard of living so that other people can retain luxury goods. Why should poor people or countries lower their emissions for the cost of their living standard so that people in richer countries can consume cheaper products? Removing certain emissions can have a large negative impact on certain people's lives, while some will only remove certain luxury aspects. This approach is in contrast to the least-cost approach deals with the human consequences of reducing emissions. Shue also discusses the division between these essential and non-essential emissions, arguing that a large portion of CO₂ emissions in developing countries are in fact important for the poor population

(this not saying that all emissions are considered essential in developing countries). (Shue 2014 p.63-67). The principle of using luxury and substance emissions for analyzing BCAs from a climate justice perspective is relevant since it brings up another dimension than the previously mentioned principles, which are more focused on the cost of emissions in economic terms. The idea of dividing emissions in essential and non-essential emissions focuses on the costs of emissions also but with the perspective that some emissions are essential for living a decent life.

4 Border Carbon Adjustments

In this section I will present empirical background information about BCAs. Since the purpose of this paper is to analyze BCAs from a justice perspective, this section will be used as a base in the analysis. I will explain how BCAs are meant to work as an economic instrument in the case of climate change, as well as present criticism of BCAs that is being discussed and other relevant information for the analysis.

4.1 Border Carbon Adjustments

A great concern for countries with high emission reduction targets are that energy-intensive industries will relocate to countries with low or no emission reduction targets. Therefore, emission reduction targets domestically could simply be transferred abroad and globally result in zero change in reduction of GHG emissions. This phenomenon is referred to as carbon leakage. Empirical studies have found evidence in this imbalance when studying the embedded carbon in products and services within trade-flows between industrialized and developing countries (Jakob et al. 2013). BCAs are a policy instrument that has been discussed as a instrument for mitigating climate change and providing a solution to the issue of carbon leakage. BCAs are a form of tariff which are implemented for leveling out the costs that domestic producers may face as a way of adapting to a more climate friendly production, while foreign producers may not be taking the same climate friendly approach. Therefore, a BCA could be of help to maintain industry competitiveness for a country and lower emissions globally. BCAs have been suggested to complement either a current domestic carbon tax or a cap-and-trade scheme. If they would be implemented with a carbon tax the BCA would result in that imported goods would cost the same as if they had been produced domestically. If accompanied with the cap-and-trade scheme a BCA would result in domestic importers or foreign exporters to purchase emissions rights based on the carbon emitted in the production process (IISD 2008 p.1).

There are two main approaches in how the BCA can price emissions embedded in goods from countries where carbon is not priced. The first approach is to price the good based on the total emissions embodied in the goods produced in the country where it is produced. The second approach is to price the good after the total emissions embodied in the product if it would have been produced in the importing country (Rocchi et al. 2018). A objective for introducing BCAs besides the prevention of carbon leakage is that they may contribute to policies for lowering GHG emissions in countries with high carbon emissions. The policy would not even have to be implemented, but simply the threat of a BCA could help to provide leverage in order to achieve this result (IISD, 2012, p.7).

4.2 Effects of Border Carbon Adjustments

BCAs have not been implemented in practice and therefore it is hard to know the exact impact they would have. Even though there has been a wide discussion about BCAs they have not been implemented in practice by any countries. Possible reasons for this will be brought up in the next section. Some countries have discussed the idea of implementing BCAs, the U.S is one example of a country considering implementing BCAs. France has also shown interest in the idea of implementing them (but this would then have to be implemented within the whole of the EU and within the European emission trading system) (IISD 2012, p.3). Because of the lack of empirical evidence of the effects from BCAs we are therefore highly reliant on the different studies conducted on the BCAs as an economic model. The models used to predict the outcomes of BCAs are well-modeled to provide as reliable results as possible. Studies have shown various results considering the effects if the concept would be implemented, and that this will vary due to how the BCA is implemented. Studies that analyze BCAs have had varied results. Some studies have shown indications that that BCAs can be successful in preventing carbon leakage and thus helping maintain competitiveness for local industries. Other studies have had contradictory results, where the result showed only a small overall effect for reducing carbon leakage. The common result however for all these studies is that the exporting developing countries would suffer significant welfare losses due to the tariffs imposed (Springmann 2013).

One proposal for an implementation of a BCA raised by critics who consider the instrument as unfair for developing countries, is the idea that the revenue generated by the tariffs should be used for climate mitigation and adaptation in developing countries. This would help not only to tackle the problem of carbon leakage in developed countries but also help developing countries adapt to climate change. This approach would focus on a more consumption-based approach, thus acknowledging and accounting for the fact that a lot of emissions embedded in products produced in developing countries are driven by the demand in developed countries (Springmann 2013). An example of this is as previously mentioned in the introduction how China and India's are two of the three biggest emitters, but a majority of their emissions are exported in contrast to example most EU countries which are carbon importers (Hausfather, 2017).

4.3 Criticism of Border Carbon Adjustments

One of the main arguments against the implementation of BCAs is that the beneficial sides of the instrument are small, at the same time as implementing them is often expected to be costly and difficult; making the gain very small. Another problematic aspect of BCAs is the question of whether they are compatible with WTO law, especially considering the non-discrimination principle. This principle works to stop countries from distinguish between domestic and foreign producers, to avert protectionism. On the other hand, BCAs work to mitigate climate change so they can be claimed to go under WTO law by

claiming to be “necessary to protect human, animal or plant life or health” or “relating to the conservation of exhaustible natural resources”. However, for BCAs to work under the above-mentioned sections they will need to be accompanied with environmental goals, and the fees will have to be implemented using a transparent and fair process. The revenue collected from the BCAs would be used for mitigation and adaptation efforts, also including developing countries (Mehlin et al. *Nature*. 2018).

Another critique against BCAs is that they amount to unfair protection of domestic industries in developed countries, since a tariff would mean that the products from these countries would be costlier for consumers and therefore not as desirable (IISD 2008, p.1-2). Another concern is that developing countries would resist these measures as they can be considered protectionist. The tax collection of implementing BCAs is reliant on the volume of trade and not the severity of the tariffs. About 70% of the total amount collected would come from developing countries, the US alone would be the only developing country contributing more than 5%. Therefore, it is clear that an introduction of a BCA would have a large effect on developing countries (Rocchi et al. 2018). Problems that have been discussed with BCAs is also that it’s hard to put a price on imported goods due to the limited knowledge of the carbon content of the goods. Secondly international trade legislation from WTO limits the ability for countries to impose tariffs on imported goods (Jakob et al. 2013). Studies suggest that the environmental impacts of BCAs could be minimal, which raises the question if the implementation would result in the countries affected by these to strengthen their mitigation effort in accordance with climate change. BCAs might have the opposite effect and result in trade disputes and be negative for international climate negotiations. The question remains if BCAs can help contribute with reducing global emissions, according to the studies conducted today though leads us to believe that they could help with added benefits for climate mitigation (Sakai & Barrett 2016).

5 Analysis

In this section I will use the discussion framework to analyze BCAs, applying the empirical background information given about them in the previous section. I will use the principles and apply them on BCAs and with the help of the general discussions of justice discuss if a BCA can be seen as fair in accordance with these.

5.1 Polluter Pays Principle

The PPP is a fault-based principle grounded on the idea that the one that has caused the damage should also pay for it. In the case of BCAs the idea is that the one who is at fault is the countries who are subjected with BCAs since they do not price carbon. In the following section I will discuss and problematize these claims using the more general discussions of justice brought up in the discussion framework.

5.1.1 Historical emissions

As stated in the previous paragraph the PPP is a fault-based principle which implies that the one who is at fault for the pollution should bear the costs of coping with the damage created by it. When studying BCAs using the PPP it is clear that they are designed in such a way in which the polluter identified becomes the country that is applied with the BCA, therefore being held responsible for the cost of polluting in form of tariffs on their goods according to the PPP. These countries are most often, as stated previously, developing countries with weaker economies. If we use the concept of including historical emissions to the total emissions, where not only emissions being emitted today are included but emissions previously emitted, it is difficult to see that the polluter identified would be the developing countries and not the industrialized and developed countries. As stated in the introduction as well as section 4.2, developing countries like India and China that are two of the largest polluters today but have polluted a lot less historically than developed countries, like the U.S and the EU countries. Given the usage of PPP as a principle of justice and including historical emissions in the calculation it cannot be viewed as a fair principle using the BCA since the countries that would be faced with BCAs are responsible for such a small proportion of the emissions when historical emissions are brought into the calculation. In conclusion when viewing BCAs using both the PPP and historical emissions as justice tools the BCA cannot be viewed as a just economic instrument in accordance with these models. This since the polluter, when using historical emissions to determine the polluter, is not the developing countries

instead it is the developed countries. Which is contradictory to the BCA since BCAs are used primarily by developed countries to implement on developing countries.

5.1.2 Climate Justice

The first question in the framework focuses on how the burden of paying for avoiding global warming should be distributed in order to be considered fair. When applying the PPP as a justice instrument for analyzing BCAs they can be considered fair and just as an economic instrument for mitigating climate change. Since BCAs are applied at countries that do not themselves tax carbon BCAs will result in that these countries will have to pay for the pollution they have caused. The payment is in form of the tariffs imposed on these products. This, as we saw in section 4.2, will lead to a significant welfare loss for these countries. Shue does however raise the issue if it is fair for developing countries to give up economic development in order to lower their own emissions. Here we have a dilemma because even though the BCA is justified with the PPP, they will result in having a negative impact on the economy of these countries. If a BCA would result in a lowered economic development that would result in developing countries getting a lower living standard, with this argument the BCA could not be perceived as being a fair. So even if the BCA can be justified with the PPP it is not justified with Shue's first question. There is on the other hand a weakness in BCAs as explained in section 4.1. Where a lot of emissions in developing countries are explained by the consumption of these products in developed countries. If we use this perspective, then the polluter is in fact developed countries who are driving up the demand for the products produced in developing countries. Thereby the PPP and BCA do not work correctly in identifying the polluter.

The second issue focuses on human consequences and how the costs for these should be allocated more evenly than today. If we look at the *each his own* approach, we can see how BCAs might be considered unjust. BCAs are instruments used to mitigate carbon leakage, and as Shue points out (see section 3.1) this problem derives from the fact that large corporations are relocating to countries where carbon is not priced. His perspective is that a lot of emissions are caused by foreign actors with a headquarter in countries where carbon is priced (the problem of carbon leakage). BCAs are as stated previously an instrument designed to prevent carbon leakage and the BCAs could help contribute to solving this issue that Shue points out. However, since BCAs will have an effect on the welfare on these countries even if BCAs will prevent carbon leakage, they will have a negative effect on developing countries. The question that has to be asked here is who is the polluter? Yes, it might be industries that contribute to the high emissions in countries, but it is the countries that have not priced carbon in the first place. In the sense that the blame is put on the countries that have not priced carbon then the BCA contributes to the polluter paying for the damage created, since the welfare will be impacted negatively. Industries that have used the system and contributed to the carbon leakage situation will also be paying, since BCAs will be placed on their goods. The BCA can therefore be considered as just in accordance with the PPP and Shue's second question of climate justice.

The last question of climate justice focuses on the distribution of GHG, and how that should be distributed between nations. As discussed in section 3.1 this question acknowledges the fact that developed countries have been emitting more than their fair shares of GHG, while developing countries have had much lower emissions historically speaking. This issue is something that has a longer time frame than the previous two questions. BCAs could be an important instrument in helping allocate GHG emissions more evenly in a longer time frame. Since BCAs would be applied on countries that do not tax carbon a BCA could help lower GHG emissions in high emitting countries, which would even out the distribution of emissions globally. Since developing countries are high emitters, a BCA could help with making the polluters (developing countries) pay for their emissions. This would help to decrease carbon in developing countries which is one of the incentives of BCAs. However, this would be problematic for the fourth issue of justice, since the gap between allocations of GHG emissions would be bigger between developing and developed countries when looking at how the emissions are consumed (see section 4.1).

5.1.3 International Justice

In the case of using both the PPP and viewing it from an international justice perspective when analyzing BCAs one can see the BCA as problematic. On one hand the polluter is the one paying for the harm the pollution is causing (in accordance with PPP) but from an international justice perspective this is seen as problematic; why should developing countries be paying a higher price when their economies are already weaker than developed countries? The international justice perspective focuses on the cosmopolitan idea that countries with larger resources are obliged to help countries with weaker economies adapt to climate change. Yes, the BCA can be seen as an economic incentive for high emitting countries to reduce their emissions, but the question is if BCAs are helping or forcing this change on to developing countries? BCAs are putting a larger burden on developing countries which through the international justice and cosmopolitan view is unfair for the countries that are affected.

As earlier mentioned in the international justice (section 3.2) one sixth of the world's population are responsible for about half of the world's current emissions. This population is from developed countries. If we analyze this when studying BCAs one might ask the question if it is fair that goods produced in developing countries should be applied with a higher price which will have an effect on their economy. As previously mentioned, (see section 4.2) countries faced with a BCA will suffer from welfare losses. Economic development is important for these countries to increase and assure a decent standard of living. If we also take into account the fact that a lot of pollution from developed countries take place in developing countries (since a lot of carbon is embedded in trade see section 4.1), it makes the case for BCAs being placed on developing countries even harder to argue for. If a majority of pollution for populations in developed countries take place abroad in developing and poorer countries, then that would mean that the pollution is physically happening in these countries. But the causal mechanism of the pollution is in fact due to the demand from developed countries who are consuming these products, or companies who have relocated their factories because of carbon being higher priced in the original country or other economic gains. If we use this logic then the BCA is not working correctly, since the true

cause of the pollution taking place is not the one paying for the damage. It is not fair then that developing countries should face welfare losses when the products are being exported and consumed elsewhere. Since this can be seen as a way for developing countries to reach the same economic development as developed countries already have achieved.

5.2 Ability to Pay Principle

The APP is not a fault-based principle as the PPP is. The APP is focused on how the economic burden of mitigating the costs of pollution should be distributed. The one who has the largest opportunity to contribute economically should also contribute the largest proportion to deal with the issue at hand. BCAs are constructed more as a fault-based principle in accordance with the PPP. In the following discussions I will however discuss BCAs through the perspective of the general discussions of justice in accordance with climate change as well as in accordance with the APP.

5.2.1 Historical emissions

If we look at using historical emissions in the calculation as well as current emissions it is difficult to argue for BCAs as an economic instrument that can be viewed as fair when applying the APP on them. This simply because BCAs are instruments meant to be applied on countries that do not tax carbon, as discussed throughout this paper this traditionally applies to developing countries who usually have weaker economies than developed countries as well as a lower living standard. If we also add the APP to this equation it is even harder to see why developing countries should have to be applied with any form of BCA, since developed countries are the ones who have more wealth and therefore have a greater ability to pay for climate mitigation efforts. When we include the discussion of historical emissions we can conclude that both the APP and the discussion of historical emissions go against the idea of BCAs in their current form. For BCAs to be relevant and fair, using historical emissions and the APP as a underlying base, the countries being applied with BCAs would need to be developed countries with high historical emissions.

5.2.2 Climate Justice

The APP is contradictory to the PPP not a fault-based principle, APP focuses on who has the ability to pay for the costs created as an effect from pollution as we saw in section 3.4.2.

Using the first question of Shue's framework that focuses on allocating the costs of preventing global warming, the APP is in line with Shue's standpoint that the focus on paying should be on the developed countries that have stronger economies and higher living standards. Shue argues that this is unfair to developing countries and argues for a decrease in emissions in developed countries while developing countries should be allowed to emit more in order to achieve economic development. However economic development should be achieved with the goal of doing this as climate friendly as possible. If we analyze the concept of BCAs using these two perspectives one can argue that BCAs contradict the previous perspectives. Since the goal with an implementation of a BCA is to achieve a reduction in emissions in high emitting countries (as previously stated in section 4.1) this contradicts Shue's opinion that these countries should be allowed to emit more in order to reach economic development. It is also contradictory to the APP, since a BCA implies that the developing countries that have weaker economies are paying for the pollution and not developed countries that have the greatest ability to pay. Since an introduction of a BCA in a developing country would lead to a reduction in welfare the developing country is paying instead of a developed country with a greater ability to pay.

Since the BCA is more in line with the PPP than the APP, there is a contradiction between the APP and the BCA. Since the APP sees that the fairness of allocating costs associated with social consequences caused by global warming (Shue's second question) should be paid by the countries with the greatest ability to pay. However, if the BCA is outlined in such a way as for the example Springmann brought up (section 4.2), the BCA could be considered fair in accordance with the APP. This would mean a BCA that is designed in such a way that revenues from BCAs would be used to help developing countries in climate mitigation and adaptation efforts. This would according to the APP be a fairer model of BCAs since even though the BCA would still be applied on developing countries at least the revenues would benefit these countries. And if the revenue helps developing countries transform their economies to be less carbon embedded then this would lead to BCAs not being necessary in the long term.

If the APP is applied on BCAs to analyze this from the fourth question's perspective on the long term, we can use the previous perspective discussed within Shue's second question. The idea that BCA revenues would go to climate mitigation and adaptation in countries applied with BCAs is meant to lead to lowering emissions in these countries. If we only look at the current emissions, developing countries (see section 1.1 as well as 3.3) are responsible for a larger proportion of these. Therefore, the idea of using revenues to help developing countries with climate adaptation is in line with the fourth question in Shue's framework since that would contribute to a more evenly distribution of GHG emissions globally. If BCAs are designed in the more traditional way however where revenues do not benefit the countries applied with them, this would mean that it is in fact the developing countries who are paying for the costs and not the developed countries who have the greatest ability to pay.

5.2.3 International Justice

If we now apply the APP as a standard of justice and analyze this approach in relation to the international justice discussion, then BCAs seem to contradict the international justice perspective. There is a consensus within the international justice perspective, that developed countries should carry a larger burden in climate mitigation efforts. The BCA is more aligned with the PPP where the cost of pollution is put on developing countries, as it is these countries that do not price carbon. As presented in the 4.2 section studies show that as an effect of BCAs being imposed on these countries, they would be faced with a significant welfare loss. Which can be seen as a way of “paying the price” for BCAs, which are implemented in order to reduce emissions globally. This means that the burden is put on poorer and developing countries. The international justice perspective recognizes the rights of these countries to have the same opportunity to economic development as the current developed countries have had, and a part of this is that they will probably see an increase in their GHG emissions as a result of economic growth. Caney (section 3.2) also highlights the argument that people have a right to a fulfilling life and the least advantaged people should be prioritized. Therefore, BCAs would be considered unfair according to the APP and the international justice perspective since a big burden would be put on the least advantaged and risk their right to the same economic development as developed countries have had.

The BCA could be considered fairer according to the discussion of international justice and the APP if they were designed in such a way which was brought up by Springmann (see section 4.2); where the revenues from the BCA were used to help developing countries adapt to climate change. By using this perspective BCAs could be considered fairer since developed countries would be helping developing countries adapt to a more climate friendly production and lifestyle. However one can also argue that even though the international justice perspective is clear on the idea that developed countries should help developing countries adapt to climate change (which this design would be doing), one could also argue that if the BCA had not been implemented at all developing countries would not be facing welfare losses in the first place. Even though it is considered fairer the revenues are still collected by developing countries which implies that they are paying and not developed countries who have a greater ability to pay. Which can be seen as a threat for these countries ability to live fulfilling lives with equal opportunities. Developed richer countries should be helping developing countries adapt to climate change, not as a result from the BCA. Using the APP and international justice discussion BCAs cannot be considered fair.

5.3 Luxury and substance emissions

In this section I will evaluate BCAs with the final principle that can be used to determine justice, luxury and substance emissions. I will as in the previous sections discuss this perspective on BCAs using the general discussions of justice in accordance with climate change.

5.3.1 Historical emissions

In the case of applying the principle of luxury and substance emissions as a standard of justice when analyzing BCAs as well as incorporating the discussion of historical emissions. It is difficult to see that these can complement each other in a way that is beneficial for the analysis. Since historical emissions have already been emitted it does not seem relevant to apply luxury and substance emissions as a principle of justice. Since BCAs cannot be applied on emissions already emitted. One might argue that a large proportion of historical emissions of developed countries were substance emissions since they contributed to economic development in these countries (see section 3.2), which is argued by Shue amongst others that developing countries should be entitled to emissions in order to grow their economies (section 3.1). It is however difficult to use BCAs as an instrument for historical emissions since we would need to determine if the historical emissions were essential or non-essential. If one could determine however how the historical emissions were distributed between luxury substance and emissions BCAs could be placed on countries with large numbers of luxury emissions. Given this I will therefore conclude that the principle of luxury and substance emissions in relation to historical emissions is not relevant for the analysis of BCAs.

5.3.2 Climate Justice

The first question of climate justice touches the topic on how costs of paying for avoidance of climate change should be distributed. Since Shue states that this has to be done without demanding developing countries to give up economic development or by decreasing their living standard, the BCAs needs to be applied in accordance with this perspective. If BCAs are applied on substance emissions, items that are essential but still emit GHG then this can lead to a lower living standard for these countries since the goods will become more expensive. If BCAs are applied to luxury goods however the BCA can be viewed as just, given that they will not have a negative effect on the living standards of people as luxury goods are associated with non-essential emissions. Today the design of BCAs only takes the carbon intensity in consideration therefore it cannot be considered fair.

The second issue of climate justice touches the effects of human consequences and the distribution of these. This was brought up in the previous paragraph where it was argued that it is unjust to ask developing countries to sacrifice economic development in order to lower their emissions. The idea of using luxury and substance emission is built on this argument that a country's living standard should not be sacrificed in order to lower emissions. If we use this argument when analyzing BCAs the argument that BCAs should only be applied on luxury goods is easily motivated. However, in the current design of BCAs (section 4.1) they are implemented based on the carbon intensity in the goods, and do not take luxury and substance emissions in consideration. A design of a BCA using the principle of substance and luxury goods discussed in the previous paragraph would be in line with Shue's second question as well. Today however they are not designed in accordance with this perspective and therefore not fair.

The last question in Shue's framework is about the long-term allocation of GHG, how to reach a fairer distribution than today. Using the principle of luxury and substance emissions when analyzing BCAs, the BCA would need to contribute to a fairer allocation in order to be accepted as fair according to this question. Looking at the concept of BCAs today it does not distinct between luxury and substance goods. BCAs could potentially contribute to a fairer allocation in the long term if the design was changed to include the distinction of luxury and substance goods. For example, it might help if BCAs were designed to only apply to luxury goods (while also taking in the carbon intensity) and not be applied on substance goods. Since Shue argues that the distribution today is divided unequally (rich countries emitting more), BCAs placed on luxury goods could potentially decrease emissions from rich countries since luxury goods are consumed by these. However, in their current design BCAs do not contribute to climate justice according to the third question.

5.3.3 International Justice

Using luxury and substance emissions as a principle of justice while looking at BCAs through an international justice perspective then one can argue that BCAs might be able to contribute to international justice if they are applied to luxury goods (non-essential emissions) and therefore not contributing to bringing up the prices on substance emissions (essential emissions). As BCAs are designed in theory today, they do not take this in consideration. As explained in section 4.1 BCAs would be placed on products simply by taking the carbon intensity in consideration if products are of luxury or substance character. Including this in the design of BCAs would contribute to BCAs being more in line both with the luxury and substance emission principle and the international justice perspective. This since removing luxury emissions would not contribute to a negative impact on people's lives which is important in the international justice discussion. Changing the design of BCAs to include the distinction between luxury and substance emissions would help developing countries since they would not be faced with tariffs on substance goods which are essential. This means that they would not be asked to lower their standard of living in order to reduce emissions. Therefore, this would be a fairer design of BCAs which could be considered just. The current design proposals however are not aligned with the concept of luxury and substance emissions or in accordance with the discussion of international justice.

6 Summary and ending discussion

The purpose of this paper has been to study the concept of BCAs and with the help of principles and discussions of justice determine if BCAs can be considered fair. By using information of how BCAs function together with the different principles and discussions of justice BCAs were analyzed and discussed. So, what can be said about BCAs and their fairness in the case of climate justice? The question presented in the beginning of this paper was: *Are border carbon adjustments fair from a climate justice point of view?*

The analysis showed that the answer to this question will depend on the how justice is perceived. To answer the research question, I will shortly summarize the results from the analysis. Firstly, by looking at the section where the PPP was applied on BCAs and discussed using the discussions of justice we can conclude that BCAs can be viewed as fair when only applying the PPP. Since the BCA is an instrument that identifies a polluter which is faced with an BCA as a result of their pollution. However, when including the more general discussions of climate justice as well as the PPP it is hard to argue that BCAs can be seen as fair. Thereafter I analyzed BCAs through the APP, where it was clear that BCAs could not be viewed as fair from this perspective and this became clearer when including the general discussions of climate justice. This since BCA would mean that the least advantaged with the least opportunity to pay would be paying for the pollution. Lastly the principle of luxury and substance emissions were applied on BCAs. This perspective was in line with the previous principles and discussions as BCAs could not be viewed as fair. However, this principle did show potential for the BCA to in the future achieve a fairer perception if BCAs were to be designed to only consider the carbon intensity in luxury goods.

The conclusion drawn from this paper is that from the perspectives presented BCAs cannot be viewed as a fair economic instrument from a climate justice perspective since they will have a negative impact on developing countries. However, as the analysis showed there are possible solutions to this problem, BCAs could be adjusted and redesigned in order to be viewed as fairer if they would be adjusted to be more in line with the principles and perspectives presented. As of today, no countries have implemented BCAs, even though they are frequently discussed as a way of dealing with carbon leakage. What is clear from this paper is that it is important that consideration is taken for developing countries when implementing economic instruments that will affect them negatively. For BCAs and other economic instruments to be seen as fair from a climate justice point of view, the living standard and economic development in developing countries should not be sacrificed in order to reduced emissions globally.

Future research on the subject of BCAs should focus on a design that takes developing countries in consideration, so that reducing emissions and preventing carbon leakage can be achieved without developing countries being affected negatively. If in the future countries decide to implement BCAs it is important to

do so with consideration for developing countries and the effects that BCAs will have on them. As this paper has showed economic development is important in order for countries to achieve a decent standard of living, reducing emissions should not prevent countries from achieving this.

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