JUST PRICE INCENTIVES TO DECREASE PERSONAL CARBON FOOTPRINTS

OSKARI SIVULA

Abstract. This article examines taxation as a way to guide individuals to decrease their carbon footprints and what justice requires from us when designing such taxes. This article suggests that from the perspective of local distributive justice if taxes are used to guide people to behavioural changes the taxes should be sensitive to people's ability to pay. This is because flat taxes tend to hit the less well-off harder than the prosperous. Furthermore, according to the "ability to pay" principle when people are bound to contribute to a common project we should not make those who are already worst-off more worse off. Following this, three further arguments are considered for why taxes aimed to diminish personal emissions should be sensitive to people's ability to pay. First, in the case of flat carbon taxes, the burdens are not distributed equally because the relevant burden in question is not the price paid but the act or effort of changing behaviour. Second, a carbon tax that directs all to emission reductions is more effective in achieving these reductions precisely because it directs all and not just certain income groups to mitigate personal emissions. Finally, it is argued that reflecting external costs and discouraging consumption are different things. Further on, because of the nature of climate change, a carbon tax should be designed to discourage consumption and not merely to reflect external costs. A carbon tax that is sensitive to different abilities to pay is better in achieving this than a flat carbon tax.

Keywords: climate change, justice, carbon tax, behavioural changes, carbon footprint.

1. INTRODUCTION

The need for rapid reduction of atmospheric greenhouse gas (GHG) concentrations is evident. To achieve this, we need to significantly mitigate GHG emission flows from their current untenable rate. A vast proportion of all GHG emissions are related to household consumption.[1] Therefore, behavioural changes

Oskari Sivula ✉
University of Turku
20014, Turku, Finland
e-mail: oskari.sivula@outlook.com

Rev. Roum. Philosophie, **63,** *2*, p. 287–299, Bucureşti, 2019

in household consumption hold a great emission reduction potential.[2] Nonetheless, this option has received little attention in the climate policy literature.[3]

Behavioural changes that can lead to GHG emission reductions include amount reduction (less consumption), modal shift (same amount of consumption but change to less emission-intensive products or services) or using products differently (for example lowering the temperature when using a washing machine). Governments can guide individuals to behavioural changes in many ways. For instance, this can be done through price mechanisms, prohibition, education, nudging or offering less polluting alternatives. Arguably, all of these mechanisms should be used to some extent. However, this paper will only focus on price mechanisms, more precisely on carbon taxes imposed to affect people's behaviour.[4] This kind of tax could be imposed on GHG emission-intensive products and services, such as flying and consuming meat.[5]

More precisely, this paper examines taxation as a way to guide people to decrease their carbon footprint and what justice requires from us when designing such taxes. Finding means to lower GHG emissions that stands in the scrutiny of justice is essential. Otherwise, efforts to reduce emissions will face resistance and further delay the implementation of the much-needed mitigation policies. Academic and policy debate about climate change has primarily focused on international and intergenerational aspects of responsibility. Despite the fact that these dimensions are important, "the use of generations and nations as the foci of analysis can hide

[1] See: Hertwich, Edgar G. and Glen P. Peters. "Carbon footprint of nations: A global, trade-linked analysis." *Environmental science & technology* 43 no. 16 (2009): p. 6414–6420. The GHG emissions related to household consumption are comprised from the GHGs "[…] emitted in the production of goods and services used for final consumption and GHG emissions occurring during the consumption activities themselves" (Ibid., p. 6414).

[2] See: Girod, Bastien, Detlef Peter van Vuuren and Edgar G. Hertwich. "Climate policy through changing consumption choices: Options and obstacles for reducing greenhouse gas emissions." *Global Environmental Change* 25 (2014): p. 5–15, 11.

[3] Ibid., 5. See also: Creutzig, Felix, Blanca Fernandez, Helmut Haberl, Radhika Khosla, Yacob Mulugetta, and Karen C. Seto. "Beyond technology: demand-side solutions for climate change mitigation." *Annual Review of Environment and Resources* 41 (2016): p. 173–198.

[4] This paper is not focused on taxes that are imposed to compensate costs or damages or to offset GHG emissions, even though these kinds of additional prices might also have an impact on people's behaviour.

[5] In 2018, Sweden imposed a tax on flights (Sonnenschein, Jonas, and Nora Smedby. "Designing air ticket taxes for climate change mitigation: insights from a Swedish valuation study." *Climate Policy* 19 no. 5 (2019): p. 651–663) and for discussion about meat tax see: Singer, Peter. "Make meat-eaters pay." *New York Daily News*, October 25, 2009. Accessed: June 20, 2019. https://www.nydailynews.com/opinion/singer-meat-eaters-pay-article-1.382901; Wirsenius, Stefan, Fredrik Hedenus, and Kristina Mohlin. "Greenhouse gas taxes on animal food products: rationale, tax scheme and climate mitigation effects." *Climatic change* 108 no. 1–2 (2011): p. 159–184; Nordgren, Anders. "Ethical issues in mitigation of climate change: The option of reduced meat production and consumption." *Journal of Agricultural and Environmental Ethics* 25 no. 4 (2012): p. 563–584.

the significance of other dimensions of inequality across class, income, gender and ethnicity".[6]

This paper assumes that there is an interest to guide people to lower their carbon footprints through price incentives. Hence, the argument is insensitive to the empirical fact of whether or not such policies are effective in achieving significant GHG emission reductions. Additionally, the argument is independent of the question of how much we should mitigate emission flows. Starting from these assumptions, the research question of this paper can be formulated as follows: if taxation is effective and there is a willingness to use it to mitigate the carbon footprints of individuals what is the justest way to do so? Finally, I wish to note that tax reforms should be holistic. For example, collecting more taxes from consumption might mean that other taxes should be lowered for the whole system to be fair. I only examine a particular type of taxes and leave open what it means to the justification of a whole taxation system in a particular society.

In the following section, I will outline a rationale, why someone might want to impact individual behaviour by pricing GHG emissions to make the argument more interesting and relevant. After arguing why there might be good reasons to guide individuals to behavioural changes through taxation, I will argue that from the perspective of distributive justice a tax, aimed to affect people's behaviour, should be progressive. Following this, I will present further arguments why in the case of carbon taxes imposed to mitigate personal carbon footprints the tax should be sensitive to people's ability to pay. Finally, I will shortly discuss the policy implications that follow from my argument.

2. THE RATIONALE FOR ALTERING PEOPLE'S CONSUMPTION BEHAVIOUR THROUGH PRICE INCENTIVES

Climate change may cause serious harm to natural and human systems.[7] To restrict the warming below 2 °C above pre-industrial levels[8] we need emission reductions in all areas of life. Majority of global GHG emissions are related to household consumption (72% according to Hertwich and Peters[9] and 65%

[6] O'Neill, John. "Dimensions of climate disadvantage." In: Walsh, Adrian J., Säde Hormio, and Duncan Purves (eds.). *Ethical Underpinnings of Climate Economics* (London: Routledge, 2017), p. 122–140, 123.

[7] See: IPCC. *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)], Geneva, Switzerland, (2014) p. 13–16.

[8] After decades of climate negotiations and discussions, governments have agreed that the stabilization goal of 2 °C is an appropriate goal to prevent dangerous global warming, while ensuring sustainable food production and economic growth (see Rogelj, Joeri, *et al*. "Paris Agreement climate proposals need a boost to keep warming well below 2 C." *Nature* 534 no. 7609 (2016): p. 631–639, 631).

[9] Hertwich and Peters. "Carbon footprint of nations," p. 6417.

according to Ivanova *et al*.[10]) Additionally, there are low GHG consumption options available. Within a consumption category (for instance food, travel or power supply) the GHG intensity of consumption options can vary by more than tenfold.[11] From this, we can see that both lifestyle and consumption behaviour have a substantial impact on GHG emission flows.[12]

Unfortunately, it is unlikely that rapid and comprehensive enough GHG emission reductions are made by individuals autonomously. This is because human beings face psychological challenges in responding to global warming. Human beings are not built to respond to slowly accumulating insensible gases tens of kilometres above ourselves. Instead, we react to rapid movements of middle-sized objects – to things that we can see. As we can hardly sense the changing climate and while the process is slow and abstract, it is hard for us to act decisively with the appropriate urgency.[13]

Moreover, because the harm created by climate change is temporarily and spatially often far from us and it happens to large groups that are abstract to us, it makes it difficult for us to be morally motivated about it. Psychologically, we tend to be near-sighted; we mainly care about what happens in the present or the near future. We care more about what happens to us and individuals close and dear to us. Furthermore, we lack the ability to feel empathy and sympathy for groups in proportion to their number.[14]

Especially because we are psychologically myopic we are forced to explore locally (both spatially and temporarily) fair mitigation policies. Otherwise, it is highly unlikely that policies that reduce GHG emissions will get the needed political support. It should be noted that justice is just one moral consideration among other moral considerations (for example welfare maximization) when considering the desirability of an action or a policy. Something can be unjust but morally justified. An example of this could be the focus of this paper – carbon taxes. If carbon taxes truly decrease GHG emissions and through that diminishe the harm created by global warming, it might overweight the unjust distribution of burdens related to the carbon taxes.[15] Nevertheless, like just mentioned our near-sighted nature makes it likely that biased attention is given to the near-future and to issues of local justice when individuals contemplate on the desirability of certain policies.

[10] Ivanova, Diana, *et al*. "Environmental impact assessment of household consumption." *ournal of Industrial Ecology* 20 no. 3 (2016): pp. 526–536, 528.

[11] Girod *et al*. "Climate policy through changing consumption choices," p. 11.

[12] See also: IPCC. *Climate Change 2014: Synthesis Report.*, p. 29.

[13] Jamieson, Dale. *Reason in a dark time: why the struggle against climate change failed and what it means for our future* (Oxford: Oxford University Press, 2014), p. 4.

[14] Persson, Ingmar, and Julian Savulescu. *Unfit for the future: the need for moral enhancement*. (Oxford: Oxford University Press, 2012), p. 39; Jamieson, *Reason in a dark time*, p. 102–103.

[15] Then again, if both a just and an unjust tax system can vastly diminish GHG emission flows we ought to choose the system that can be considered just.

In addition to psychological challenges, individuals are essentially facing a collective action problem. The fact that societies are so large makes it impossible for individuals to get assurance that others are complying to emission reduction through their actions. Moreover, people tend to want some assurance that others are making an effort for them to be motivated in collective action situations. While it does not make sense (from the perspective of maximizing personal utility) for an individual to reduce emissions if others do not, it appears that the only way to provide assurance of others complying is by their governments imposing regulation that makes all "chip in" to the shared project of mitigating climate change.[16] Because of the psychological challenges and the collective action problem, it is unlikely that merely through communication or education sufficient changes in consumption patterns are achieved.[17]

From the regulatory instruments that governments can use to affect individual behaviour, price incentives sustain more autonomy and freedom than simple prohibition. Besides, bans tend not to be a suitable instrument to reduce individual carbon footprints. This is because almost all human activity causes GHG emissions. It is not clear how to avoid "[...] vacuousness, arbitrariness, and legislative overkill" when imposing a legal prohibition on individual actions that cause GHGs.[18] In this sense, price incentives balance between ineffective means of communication and education and a legislative-overkill, namely prohibition. Nevertheless, all regulatory means should be used to decrease GHG concentrations depending on the situation. The question is not either-or but rather in what particular situation what mixture of regulatory measures is the most suitable.

Three further points can be noted in favour of taxation on consumption. One, a consumerist lifestyle has many other negative externalities than only GHGs related to it. Second, shifting the tax base more away from taxing income to taxing expenditure can be seen positively in the sense that earning money is not bad in itself whereas the consumerist lifestyle has adverse effects. Finally, the earth does not "care" where the GHG emissions have been created. Concentrating only on territorial-based emissions is questionable on the basis that many affluent countries import a substantial amount of the goods consumed in their country from abroad. Taxing consumption can diminish the "outsourced" emissions of a particular country. It has been estimated that 23% of global GHG emissions are embodied in goods that are traded.[19]

[16] See: Persson and Savulescu. *Unfit for the future*, p. 80.

[17] It should be noted that many have changed their consumption behaviour after gaining knowledge about the climate crisis, meaning that the rather pessimistic picture I have painted of our psychological traits cannot be attributed to all of us.

[18] Feinberg, Joel. "Environmental pollution & the threshold of harm." *Hastings Center Report* 14 no. 3 (1984): p. 27–31, 30.

[19] Davis, Steven J., and Ken Caldeira. "Consumption-based accounting of CO2 emissions." *Proceedings of the National Academy of Sciences* 107 no. 12 (2010): p. 5687–5692, 5688.

Finally, it needs to be noted that, even though governments can partially overcome the collective action problem between individuals within a country by regulative measures, the same does not apply in a global context. Taking into consideration the global setting, it can be challenging to acquire the political will in a particular country to regulate themselves when there is no assurance that other countries will do the same. Though something is challenging does not mean it is impossible. Sweden, for example, imposed a flight tax, therefore making it more expensive to fly from Sweden.[20]

3. CARBON TAXES AND THE "ABILITY TO PAY" PRINCIPLE

Anthropogenic climate change is a prime example of what economists call an externality. Externalities, also known as third-party effects, occur when an action affects another entity without its permission. For instance, if I host a party at my home with loud music for my guests to dance to, my neighbours will also hear this blasting music. With GHG emissions – a vital part of most economic activity – the impact, affecting individuals and groups outside the emission-generating activity, is the rising global average temperature. As a consequence of the changing climate, catastrophic phenomena such as increased extreme weather events, rising sea level, loss of biodiversity, undermined food security and so on affect people and ecosystems around the world.[21] Externalities can either be negative or positive[22] but in the case of climate change and GHG emissions the effects are, to a large extent negative.

From the economic perspective, the fundamental problem with GHG emissions is that consumers are not paying the "full price" of their climate warming activities. The damage created by their activity is not visible to them. Therefore, optimal behaviour is not achieved, where people engage in an activity only as long as the benefits gained from the activity exceeds all of the costs involved. A straightforward solution to the problem is to impose an external price on the activity that creates emissions. Hence, making all costs of the emission-generating activity explicit.

The theoretical idea of imposing a tax on negative externalities was first articulated by an early twentieth-century British economist Arthur C. Pigou.[23] According to a "Pigouvian tax", making all costs of an activity affect the decision making of consumers and producers leads to a socially optimal level of that activity. The idea of the tax is to create an incentive for people to engage in an activity only as long as all benefits of the activity are greater than all of the costs to

[20] See: Sonnenschein and Smedby. "Designing air ticket taxes for climate change mitigation," p. 651–663.

[21] IPCC. *Climate Change 2014: Synthesis Report.,* p. 13–16.

[22] For example, a warming climate may enhance agricultural possibilities in northern regions and it may increase the well-being of certain species.

[23] Pigou, Arthur. *The economics of welfare*. (Routledge, 2017).

society. By doing this the externality is "internalized". According to the Pigouvian theory the socially optimal level is achieved when the tax is levied as a flat-rate equalling to the harm created by the externality.[24]

A carbon tax is rooted in the idea of "polluter pays", which is an important aspect when considering just distribution of burdens related to emission mitigation. The ones who pollute should pay, simple as that. However, a fair carbon tax may need to be supplemented by other considerations about justice. The reason for this is that the consequence of a flat-rate tax is that the wealthy will be less affected by this fee than the poor. In the literature, it is widely acknowledged that different GHG emission pricing instruments tend to be regressive.[25] Emission pricing is regressive for poor people because on average the carbon tax takes up a larger percentage of their budget. Usually, the same percentage for a wealthy person is much lower. Consider for example a flat-rate of 50 € on a flight. For a person *x* whose monthly budget is 1000 € the external emission price takes up to 5% of *x's* monthly budget. Now consider a person *y* whose monthly budget is 5000 €. In this case, the external emission price takes only 1% of *y's* monthly budget. Thus, the flat-rate tax is felt harder by low-income people and it does not imply an equal loss of welfare for all involved. Additionally, a flat-rate tax might affect people's ability to engage in certain activities, leaving these activities only for the ones who can afford it.

Using this kind of taxation to combat climate change can be claimed to be unfair if further considerations about justice are included. Henry Shue has argued that *ability to pay (AP)* principle is extensively accepted principle of justice.[26] According to the AP principle, the ones who have a greater ability to pay should contribute more to commonly shared projects. Shue formulates the principle as follows: "Among a number of parties, all of whom are bound to contribute to some common endeavour, the parties who have the most resources normally should contribute the most to the endeavour."[27] The AP principle is based on the idea that we should not make "those who are already the worst-off yet worse off."[28] From this, we can clearly see that a flat carbon tax imposed on consumers does not fulfil the requirements of the AP principle. In other words, it "hits" the less well-off harder than the prosperous and makes them more worse off.

[24] Metcalf, Gilbert E., and David Weisbach. "The design of a carbon tax." *Harvard Environmental Law Review* 33 (2009): p. 499–556, 511.

[25] See for example: Robinson, H. David. "Who pays for industrial pollution abatement?" *The Review of Economics and Statistics* 67 no. 4 (1985): p. 702–706; Metcalf, Gilbert E. "A distributional analysis of green tax reforms." *National tax journal* 52 no. 4 (1999): p. 655–681; Caney, Simon, and Cameron Hepburn. "Carbon trading: unethical, unjust and ineffective?" *Royal Institute of Philosophy Supplements* 69 (2011): p. 201–234; Gough, Ian. "Carbon mitigation policies, distributional dilemmas and social policies." *Journal of Social Policy* 42 no. 2 (2013): p. 191–213.

[26] Shue, Henry. "Global environment and international inequality." *International affairs* 75 no. 3 (1999): p. 531–545, 537.

[27] Ibid., p. 537.

[28] Ibid., p. 540.

This problem can be overcome by designing the carbon tax to be sensitive to people's ability to pay. Before moving to consider policy implications let us consider further arguments in favour of a progressive carbon tax.

4. FURTHER ARGUMENTS IN FAVOUR OF A PROGRESSIVE CARBON TAX

Being regressive, a flat carbon tax increases inequality in a society.[29] The same worry, I believe, can be raised about most taxes that are flat. Taxes are customarily collected to finance the common endeavour of running a state (for example, building roads, maintaining hospitals and so on). If the taxes are flat they are often regressive, and they increase inequality (assuming that the taxes are not used to redistribute wealth). It is a long-lasting debate, what kind of taxation is just. Because of this, in this section, I want to consider further carbon taxes levied in order to affect individual behaviour, to see whether a stronger argument in favour of a progressive carbon tax (or against flat carbon tax) can be made and not merely argue that they are regressive and increase inequality. Increasing inequality is a paramount concern, yet the problem of financial inequality can, in theory, be mitigated with different redistributive measures in society. In what follows, three further arguments in favour of a progressive carbon tax are considered.

The flat-rate carbon tax does not, in some cases, create enough of an incentive for the well-off to change their behaviour. Now assuming that all of us should mitigate our carbon footprint, the flat-rate emission tax can, further on, be argued to be unfair because the burdens are not distributed equally. This is because, if we agree that everyone should lower their GHG emissions regardless of their financial situation, the relevant burden in question is not the price paid but the act or effort of decreasing one's emissions. Therefore, for emission pricing to be fair, the price incentives should be built so that it guides all to emission-related behavioural changes.

This leads us to the second point. Emission pricing is more effective in achieving GHG emission reductions if it is designed in a way that it directs all into behavioural changes. If the external emission price is too low it is not necessarily effective in the sense that it only guides certain income groups into behavioural changes. On the other hand, if the pricing is too high it hits the less well-off disproportionately. As a consequence of this, emission pricing should be sensitive to people's ability to pay. Typically, poor individuals have contributed less to

[29] A flat carbon tax does not *necessarily* increase inequality. We can imagine a world where the poor suddenly start to earn more money than the rich. This means that equality increases in this society. Now, if a progressive carbon tax is introduced the poor who now earn more are taxed more strongly, therefore, stalling the equality progression. If the carbon tax would have been flat, it would have taxed the rich (who are now earning less) more, thus, increasing equality.

global warming than wealthy individuals. According to Ian Gough, "Income is significantly correlated with all types of emissions".[30] In the UK, the emissions of the wealthiest 10% are over double compared to the poorest 10%. According to his findings, income is a significant explanatory factor for higher individual emissions.[31] Richard Wilkinson and Kate Pickett have also claimed that in a given society a rich individual may cause ten times higher GHG emission compared to a poor individual.[32] This makes the regressive nature of flat carbon taxes even more unjust.

One might point out that precisely because rich have a higher personal carbon footprint, it does not matter that the carbon tax is flat. Even though the flat-rate is the same for the rich and the poor, it does not affect the poor as much, as they do not have such polluting lifestyle. They might consume less in general: fly less, not own cars and second houses. Certainly, a flat-rate affects the heavy consumers more, but the impact is trivial if the rates are not high enough to bring upon behavioural changes. What is called here into question is whether or not it is fair that the poor individuals are forced to diminish their already small share of GHG emissions. Flat taxes on commodities that only the wealthy consumes would be just from the AP perspective. Notably, luxury taxes, such as taxes on speedboats or exotic woods would not be regressive. However, it does not seem reasonable to assume that poor people never drive, fly, warm their houses or eat meat, for instance. Because of this, it may depend on the products what kind of taxation can be considered fair.

If the carbon tax aims to impact individual behaviour (and not to raise tax revenues or to compensate for caused damages) careful attention needs to be paid to how will the added price affect different people and their behaviour. If carbon taxes are only effective for low-income people it fails to achieve its purpose. Contrarily, if the rate is too high it hurts the low-income groups unfairly.

For the third point, let us consider other taxes on externalities and see how they differ from carbon taxes aimed to decrease personal carbon footprints. Generally, taxes are justified because they raise revenue. Excise taxes (such as cigarette, alcohol, sugar and pollution taxes) differ from this, in the sense that they are often justified also on other grounds. Excise taxes are justified because in addition to raising tax revenue, they reflect external costs, discourage consumption and can be used to charge users for services provided by the government.[33] Here I am interested in the justification based on reflecting external cost and discouraging consumption. Reflecting external costs and discouraging consumption can be seen as two different things. Reflecting external costs is based on the idea that rational individuals can, for instance, smoke, drink or drive a car as long as they have

[30] Gough. "Carbon mitigation policies," p. 204.

[31] Ibid.

[32] Wilkinson, Richard and Kate Pickett. *The Spirit Level: Why Greater Equality Makes Societies Stronger* (New York: Bloomsbury Press, 2010), p. 222.

[33] Cnossen, Sijbren, ed. *Theory and practice of excise taxation: smoking, drinking, gambling, polluting, and driving* (Oxford: Oxford University Press, 2005), p. 2–5.

considered all of the costs and benefits (both private and public) of the activity. This may function as discouraging consumption but is not so necessarily.

The external costs related to smoking are primarily the health care costs related to health issues resultant from smoking. This said, it makes sense that if people are willing to pay for the external cost that their smoking habit creates they are free to do so. As with smoking, one person's smoking does not really affect the harm or external cost created by some other individuals smoking. The costs created are linear: one person smoking and getting health issues from it will create a health care cost that's size is more or less unitary and another person doing the same thing will create the approximately same costs and further on these costs will add on top of each other. Even if you have a tremendous amount of money, there is a limit on how much your smoking causes harm. If not considering health issues from passive smoking, there is only one body that can be damaged through smoking and the harm has a limit – death.

Furthermore, it is not clear whether there is a common project of reducing overall smoking as there is for reducing GHG emissions. From a paternalistic perspective discouraging consumption in the case of cigarettes is justified because it is an unhealthy habit. Therefore, governments try to make people reduce smoking. Taking a more liberal stance, governments should not have a saying to what you do to yourself as long as it does not hurt others and you are willing to pay the external costs created by the activity. Hence, from a liberal perspective, it is not problematic if wealthy people can continue smoking more than poor people as long as they pay their taxes. In the case of GHG emissions and global warming, the issue is more complex.

With emission-generating activities, the overall harm in not created by simple addition. Instead, the harm is created in connection with other emissions. The climate is warming because billions of people engage in emission-generating activities that are harmless in themselves but together cause climate change as the GHGs accumulate in the atmosphere. In this sense, if some people can continue to live emission-intensive lifestyles because they can afford it, they diminish the emissions that others can release to the atmosphere while trying to maintain the emission concentrations at a safe level. Also, the harm created by GHG emissions is very different from the one created by smoking. With smoking, the harm is created to oneself and through that costs to the society arise.

In contrast, harms created by climate change directly affect other people. Rising sea levels wipe out island nations and destroy property, heat-waves and extreme weather events cause premature deaths, droughts cause famine and so on. These kinds of harms cannot be compensated with money in a similar matter that health care costs from smoking can.[34] Given this, if taxation does not guide all to

[34] Even though the harms cannot be compensated similarly, the emissions can be offset. One's net impact can, in theory, be carbon neutral if she finances efforts or projects that reduce GHG emissions elsewhere or either absorb GHGs from the atmosphere to the same extent she creates them. Nevertheless, generally environmental taxes are not directed to projects that offset GHGs.

emission reductions it is unfairly designed not only because it emphasises inequality but also because it lets the more well-off be free-riders in the common project of reducing overall GHG emissions. Both tobacco taxes and carbon taxes are levied on things that are wanted to be deterred. In this sense, they are similar. However, compared to tobacco taxes, the disincentivising nature of a tax is better justified in the case of carbon taxes. Therefore, a flat-rate tax is more suitable for cigarette products than GHG emissions.

5. POLICY IMPLICATIONS

There are two policy implications that can be concluded from what is argued above if what I have argued is correct. Either we should not use conventional taxation to affect individual behaviour in the case of GHG emissions if we give great value to considerations about local justice, or, alternatively, we should guide people to behavioural changes with taxation, but the taxes should be sensitive to different abilities to pay.

Starting with the latter: how can we design a carbon tax to be progressive? Admittedly, designing such a tax system is not a simple task. Nonetheless, there are a few ways a carbon tax can be designed to be sensitive to different abilities to pay. I will briefly discuss these different solutions, even though this paper is primarily focused on the normative arguments leaving various options of practical implementation open. A straightforward way to design a wealth-dependent carbon tax this is to impose a tax on high polluting luxury items that poor people are unlikely to purchase.[35] These items could include things such as second homes and jet skis.

A second way to accomplish GHG decreasing impact without disproportionately affecting the poor is through tax rebates.[36] Recently (January 2019), the most extensive public statement of economist in history was signed by 3554 economists, stating that: “To maximize the fairness and political viability of a rising carbon tax, all the revenue should be returned directly to U.S. citizens through equal lump-sum rebates. The majority of American families, including the most vulnerable, will benefit financially by receiving more in “carbon dividends” than they pay in increased energy prices.”[37]

Plans similar to the scheme proposed above are in progress in Canada. Starting in 2019, Canada “will introduce a national ‘fee and dividend’ scheme that will place a levy on the carbon emissions of fuels and other products, but then

[35] See: Casal, Paula. “Progressive environmental taxation: A defence.” *Political Studies* 60 no. 2 (2012): p. 419–433, 425.

[36] Tax rebates are not unproblematic. They take money out of the pocket temporarily and this can be problematic.

[37] Climate Leadership Council, “Economist’s Statement on Carbon Dividends,” Accessed: September 15, 2019. https://www.clcouncil.org/economists-statement/

refund the money to individuals and companies through tax rebates."[38] According to an estimate, over 70% of Canadian citizens will receive more back in tax rebates than they would pay in new tax.[39] As a consequence, the tax will guide people to consume less polluting products and services through price incentives without making the underprivileged worse off.

For the third solution, I invite the reader of this paper to consider a more hypothetical situation. The current state of technology would allow us to design a system for recording the emissions generated by an individual or in a household. In the beginning, only selected emission-intensive products such as fossil fuels, electricity and transportation could be included, but over time more and more items could be included. A carbon tax would then be levied on the emissions progressively so that the person's annual income determines the tax rate.[40] This tax scheme would incentivize everyone equally to move into a more environmentally friendly way of living. It can be questioned whether such a hypothetical tax scheme is desirable, as it probably would be administratively complex and expensive, it would collect an immense amount of sensitive data of individuals and the system could be cheated.[41] Because of this, I conclude that the first and second tax schemes proposed above are the most viable.

Let us turn to the option of not using taxation to impact consumption patterns of individuals. Instead of adding an extra price on emission-intensive products and services, environmentally friendly products or services could be subsidised, making them cheaper and hence introducing a price incentive to consume them. The problem with subsidies is that they are expensive for the government. Of course, there are many complexities that affect what price incentives are most optimal in an economic sense in a given situation. As my focus is only on the normative arguments, it is out of the scope of this paper to give definitive policy suggestions. What can be said is that the positive side of environmentally oriented subsidies is that they encourage people to use less polluting products and services without "hitting" the poor.[42]

Interestingly, there are many subsidies that are harmful to the environment, like subsidies for aviation. Now, if these and other similar kinds of subsidies are removed, they will affect individual consumers in a similar manner as a flat tax

[38] "Wanted: a fair carbon tax." *Nature* 564 (2018): p. 161. Editorial.

[39] Ibid.

[40] For a similar proposal see: Casal. "Progressive environmental taxation," p. 425–426.

[41] Suppose an affluent person who has a low earning friend or a family member. This high-earner could ask the low-income person to purchase all of the most polluting products to avoid taxes.

[42] This can be questioned, depending on what products and services are subsidised. For example, if electronic vehicles are subsidised it can be argued to indirectly affect the poor in some circumstances. This is because electronic vehicles tend to be expensive and mainly used by the more well-off. Now if the subsidies for electronic vehicles are financed by cutting governmental services that benefit the less well-off, it can be said that the subsidising of electronic vehicles impact the poor negatively.

would (assuming that the additional prices are passed along to the customers when the subsidising is ended). Removing such environmentally harmful subsidies is clearly the right thing to do when assessing the issue from a wider perspective, including natural environment and future generations, but from a local perspective it can arise distress in many as it will affect the less well-off more. This points out the myriad challenges related to balancing between locally just distribution of burdens and using price incentives to combat climate change.

6. CONCLUSION

In this paper, I investigated the following question: if taxation is effective and there is a willingness to use it to mitigate the carbon footprints of individuals, what the is the justest way to do it? First, I outlined a rationale why there might be an interest to guide individuals to reduce their carbon footprint using price incentives. Following this, I argued that from the perspective of local distributive justice a flat carbon tax can be considered unjust. This is because flat carbon taxes tend to hit the less well-off harder than the prosperous. Furthermore, according to the AP principle when people are bound to contribute to a common project we should not make those who are already worst-off even worse off. After this, I presented three further arguments why taxes aimed to diminish personal GHG emissions should be sensitive to people's ability to pay. First, in the case of flat carbon taxes, the burdens are not distributed equally because the relevant burden in question is not the price paid but the act or effort of changing behaviour. Second, a carbon tax that directs all to GHG emission reductions is more effective in achieving these reductions precisely because it directs all and not just certain income groups to mitigate personal emissions. Finally, I argued that reflecting external costs and discouraging consumption are different things. Further on, because of the nature of climate change, a carbon tax should be designed to discourage consumption and not only to reflect external costs. A carbon tax that is sensitive to different abilities to pay is better in achieving this than a flat carbon tax. In the last section, I briefly discussed the policy implications that follow from my argument.

Acknowledgments: I thank Juha Räikkä and Helena Siipi for their valuable comments on earlier versions of the paper.