

THE STUDY OF THE IMPACT OF CARBON TAXES IN THWARTING THE IMPENDING DANGER POSED BY THE CLIMATE CHANGE

O ESTUDO DO IMPACTO DOS IMPOSTOS DE CARBONO EM FRUSTRAR O PERIGO IMINENTE REPRESENTADO PELAS MUDANÇAS CLIMÁTICAS¹

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Abstract: Climate Change is one of the pressing environmental concerns of the Present times. The adverse impact of global warming is becoming more apparent in unusual weather events. The danger posed by Climate Change poses an existential threat to the present world, which can no longer remain unaddressed. The issue has been constantly addressed in different International forums. The Paris Agreement has given impetus to global efforts by formally adopting the objective of keeping the global temperatures preferably below 1.5-degree centigrade in comparison to the pre-industrial levels. The United Nations adopted the 2030 Agenda for Sustainable Development in 2015. At its heart are 17 Sustainable Development Goals. SDG 13 is about taking urgent action on the part of the global community in combating climate change. To attain the objectives of the Paris agreement, the present research will test the effectiveness of the fiscal tools, primarily the carbon tax. The Researcher intends to study the carbon taxes in European Union and Canada. The study will focus on the effectiveness, and the viability of the regulations governing the carbon taxes in attaining the 13th Sustainable Development Goal set under the 2030 Agenda for sustainable development. The Researcher further intends to propose the policy measures that can be adopted by India for the implementation of the carbon tax to address the threat posed by Climate Change.

Keywords: Climate Change. Sustainable Development Goals. Global Warming. Carbon Taxes. Paris Agreement.

Resumo: A mudança climática é uma das preocupações ambientais prementes dos tempos atuais. O impacto adverso do aquecimento global está se tornando mais aparente em eventos climáticos incomuns. O perigo representado pelas Mudanças Climáticas representa uma ameaça existencial ao mundo atual, que não pode mais ficar sem solução. O tema tem sido constantemente abordado em diversos fóruns internacionais. O Acordo de Paris impulsionou os esforços globais ao adotar formalmente o objetivo de manter as temperaturas globais preferencialmente abaixo de 1.5 graus centígrados em comparação aos níveis pré-industriais. As Nações Unidas adotaram a Agenda 2030 para o Desenvolvimento Sustentável em 2015. No seu cerne estão 17 Objetivos de Desenvolvimento Sustentável. O ODS 13 é sobre tomar medidas urgentes por parte da comunidade global no combate às mudanças climáticas. Para atingir os objetivos do acordo de Paris, a presente pesquisa testará a eficácia das ferramentas fiscais, principalmente a taxa de carbono. O pesquisador pretende estudar as taxas de carbono na União Européia e no Canadá. O pesquisador pretende estudar as taxas de carbono

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na União Européia e no Canadá. O estudo se concentrará na eficácia e na viabilidade dos regulamentos que regem as taxas de carbono para atingir o 13 de Objetivo de Desenvolvimento Sustentável estabelecido na Agenda 2030 para o desenvolvimento sustentável. O pesquisador pretende ainda propor as medidas de política que podem ser adotadas pela Índia para a implementação do imposto de carbono para enfrentar a ameaça representada pelas mudanças climáticas.

Palavras-chave: Alterações Climáticas. Metas de desenvolvimento sustentável. Aquecimento global. Impostos sobre Carbono. Acordo de Paris.

1. Introduction

The World is grappling with the adverse impact of climate change, in the form of the changing weather patterns². The initial attempt to bring about solutions in this direction emerged when the leader across the world entered into a multilateral environmental agreement which was named as United Nations Framework on Climate Change³. The UNFCCC came into force in the year 1994. At that time, there was less evidence available regarding the human involvement in the climate change. However, now there are ample evidences available that the anthropogenic activities are responsible for climate change⁴. In order to provide the authentic and scientific information on climate change the United Nations along with World Meteorological Organization developed the Intergovernmental Panel on Climate Change⁵. The IPCC has come up with several assessment reports in order to determine the various aspects pertaining to the climate change. The Paris agreement of 2015, provides the world with a target to keep the global temperatures not to rise beyond 2 degree centigrade and preferably below 1.5 degree centigrade⁶. The fifth IPCC Assessment report found that, in order to meet the targets under the Paris agreement, it is important that the world should adopt a more sustainable way of living on the Planet earth⁷.

² 'Effects | Facts – Climate Change: Vital Signs of the Planet' <<https://climate.nasa.gov/effects/>> accessed 25 January 2022.

³ 'What Is the United Nations Framework Convention on Climate Change? | UNFCCC' <<https://unfccc.int/process-and-meetings/the-convention/what-is-the-united-nations-framework-convention-on-climate-change>> accessed 25 January 2022.

⁴ V Eyring and others, 'Human Influence on the Climate System. In Climate Change 2021: The Physical Science Basis' [2021] Contribution of Working Group I to the Sixth 41 Assessment Report of the Intergovernmental Panel on Climate Change <https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter_03.pdf>.

⁵ 'Climate Change | United Nations' <<https://www.un.org/en/global-issues/climate-change>> accessed 25 January 2022.

⁶ 'The Paris Agreement | UNFCCC' <<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>> accessed 25 January 2022.

⁷ 'Global Warming of 1.5 °C —' <<https://www.ipcc.ch/sr15/>> accessed 25 January 2022.

2. Climate Change: A global issue

The Climate Change has become a global issue and is one of the most discussed one at the world level. The irony of the issue is that, the section of the society which is suffering the most is hardly responsible for the cause of the climate change⁸. The incessant increase of the greenhouse gas emissions has brought the level of the Carbon Dioxide in the atmosphere to the level of 43% in comparison to the levels in 1850⁹. The history of climate change somewhere coincides with the history of understanding the phenomenon of Global Warming. It is a scientific fact that the Carbon dioxide and water vapour captures the heat emanated from various sources. However, it was the Swedish scientist Svante Arrhenius, who established that burning of Coal and other fossil fuels could lead to the rise in the global temperature¹⁰. The global warming has been scientifically proved to be due to the excessive interference of the humans with the nature¹¹. The issue has become important in the light of the fact that the human existence now depends upon the efforts that can reduce the impact of the climate change on the earth¹². The climate change has been considered to be the reasons for the natural disasters that the earth has been witnessing¹³.

⁸ Lorraine Whitmarsh, Saffron O'Neill and Irene Lorenzoni, 'Climate Change or Social Change? Debate within, amongst, and beyond Disciplines' (2011) 43 *Environment and Planning A: Economy and Space* 258 <<http://journals.sagepub.com/doi/10.1068/a43359>>.

⁹ 'Greenhouse Gases' Effect on Climate - U.S. Energy Information Administration (EIA)' <<https://www.eia.gov/energyexplained/energy-and-the-environment/greenhouse-gases-and-the-climate.php>> accessed 27 January 2022.

¹⁰ 'Introduction - Summary' <<https://history.aip.org/climate/summary.htm>> accessed 27 January 2022.

¹¹ Peter Hoeppe, 'Trends in Weather Related Disasters – Consequences for Insurers and Society' (2016) 11 *Weather and Climate Extremes* 70 <<https://linkinghub.elsevier.com/retrieve/pii/S2212094715300347>>.

¹² Anthony D Barnosky and others, 'Introducing the Scientific Consensus on Maintaining Humanity's Life Support Systems in the 21st Century: Information for Policy Makers' (2014) 1 *The Anthropocene Review* 78 <<http://journals.sagepub.com/doi/10.1177/2053019613516290>>.

¹³ Ilan Kelman and JC Gaillard, 'Chapter 2 Embedding Climate Change Adaptation within Disaster Risk Reduction' (2010) <[https://www.emerald.com/insight/content/doi/10.1108/S2040-7262\(2010\)0000004008/full/html](https://www.emerald.com/insight/content/doi/10.1108/S2040-7262(2010)0000004008/full/html)>.

Figure 1: Trends of the Natural disasters induced due to climate change



Source : EM-DAT¹⁴

The World Bank has proposed few measures in order to arrest the pace of climate change. The proposed measures include putting the cost on the emission from the carbon rich fuels, discouraging the subsidized carbon rich fossil fuels, building cities with the less use of carbon and increasing the usage of the renewable energy¹⁵. The imposition of the environmental taxes could serve the two purposes. On the one hand it can be deterrent to the emissions and environmental degradation and on the other hand it will boost the tax revenues. The environmental taxes can be imposed on various sectors causing environmental pollution¹⁶. The primary sectors contributing in the environmental degradation are the transport sector and energy sector¹⁷. The countries across the globe should take positive steps in imposing the environmental taxes on the different sources of emissions leading to the global warming¹⁸. The international organization should direct the countries to create the environmental body which could implement the fiscal measures in order to curb the rise in the environmental degradation.

¹⁴ Vision of Humanity, 'Increase in Natural Disasters on a Global Scale by Ten Times' (*Institute for Economics and Peace*) <<https://www.visionofhumanity.org/global-number-of-natural-disasters-increases-ten-times/>>.

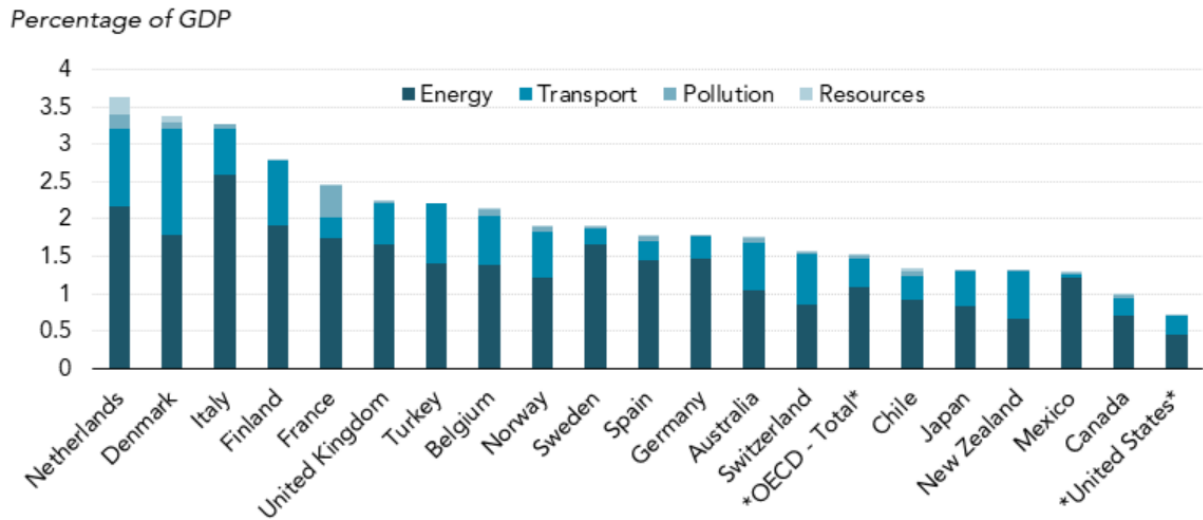
¹⁵ '5 Ways to Reduce the Drivers of Climate Change' <<https://www.worldbank.org/en/news/feature/2015/03/18/5-ways-reduce-drivers-climate-change>> accessed 27 January 2022.

¹⁶ Mark Pearson, 'The Political Economy of Implementing Environmental Taxes' (1995) 2 *International Tax and Public Finance* 357 <<http://link.springer.com/10.1007/BF00877506>>.

¹⁷ Ibrahim Dincer, 'Environmental Issues: I-Energy Utilization' (2001) 23 *Energy Sources* 69 <<http://www.tandfonline.com/doi/abs/10.1080/00908310151092191>>.

¹⁸ Paul Ekins, 'European Environmental Taxes and Charges: Recent Experience, Issues and Trends' (1999) 31 *Ecological Economics* 39 <<https://linkinghub.elsevier.com/retrieve/pii/S0921800999000518>>.

Figure 2: Data on Environmental Taxes of OECD Countries



Source: OECD Environmental Revenue Database

3. Polluter Pays Principle: A Panacea for Climate Change?

The Polluter Pays Principle has evolved to an important principle of environmental jurisprudence. The Principle creates a liability on the polluter to compensate for the harm caused, due to the release of the negative externalities into the environment. The reduction in emissions can become an incentive for the polluter, in such an ecosystem. The Principle has its merits in being a preventive measure to arrest the rising grave problem of Climate Change. There is a underutilization of the principle as far as the possibility of ensuring the distributive justice¹⁹. The threats confronting the tranquility of the environment, indirectly affect the goals of Sustainable development laid down by the global community. The Intergovernmental Panel on Climate Change has confirmed that despite sticking to the target laid down in the Paris agreement, the world should be ready to face the wrath of the Nature, in forms of sea level rise and erratic weather patterns²⁰. Any mitigation strategy taken up by the policy makers without taking into account the damages could potentially backfire²¹. There is no denial in the fact that there exist a reasonable correlation between the economic policy and environmental policy and the implementation of sustainable development. The

¹⁹ de Andrade Moreira, D., Rego Teixeira Lima, LM, & Freire Moreira, I. (2019). The Polluter-Pays Principle in the Brazilian Superior Courts: A Critical Analysis. *Paths of Law*, 16, 367.

²⁰ Davidson, M. D. (2021). How Fairness Principles in the Climate Debate Relate to Theories of Distributive Justice. *Sustainability*, 13(13), 7302.

²¹ van der Wijst, K. I., Hof, A. F., & van Vuuren, D. P. (2021). On the optimality of 2° C targets and a decomposition of uncertainty. *Nature communications*, 12(1), 1-11.

principle of the polluter pays has evolved as the official tool, in some countries, to regulate the activities endangering the environment²². The European Parliament had adopted the directive targeting the environmental damage and setting out the framework of Polluter Pays Principle²³.

There is a debate on whether the liability to compensate is on those who have polluted or on the beneficiary of the activities, which have caused the climate change²⁴. However the contribution of the polluter pays principle in ensuring the equitable distribution of the socio-environmental burdens cannot be underestimated²⁵. There is an evolution of economic instruments, wherein apart from imposition of carbon taxes, the issuance of nature bonds and making the polluters pay for the ecosystem services are also becoming an alternative option to safeguard the environment²⁶.

4. Carbon Tax: A Fiscal Tool

The Carbon tax is a fiscal tool that can be utilized in controlling the emission from the industrial units²⁷. The imposition of the tax can turn out to be a political issue if we consider it from the perspective of the developing country²⁸. The levy of the carbon tax can bring about the widespread discontent among the common men and women, if the intention is to pass on the burden of the tax on the consumer. The structure of the carbon tax is critical in adopting any proposal to adopt the carbon tax. The sectors where the tax need to be implemented is crucial in the successful adoption of this fiscal tool²⁹. The rate of tax will also play a pivotal role in convincing the people to go ahead with the adoption of the carbon tax. There is an existential crisis which needs to be acknowledged and communicated to the last man who bear the brunt of the tax. There should be a proper communication in order to educate the masses that the carbon emission can be problem in the longer run. The

²² Tran Cong Thiet, 'THE POLLUTER PAYS PRINCIPLE IN THE EUROPEAN UNION LAW AND IN VIETNAM-SELECTED ISSUES' (2021) 24 Journal of Legal, Ethical and Regulatory Issues.

²³ Directive 2004/35/CE on environmental liability with regard to the prevention and remedying of environmental damage 2004.

²⁴ Gonzalez Ricoy, I. (2019). Two Backward-Looking Principles of Climate Justice. *ISEGORIA*, (61), 623-640.

²⁵ de Andrade Moreira, D., Rego Teixeira Lima, LM, & Freire Moreira, I. (2019). The Polluter-Pays Principle in the Brazilian Superior Courts: A Critical Analysis. *Paths of Law*, 16, 367.

²⁶ Garcia Lopez, T. (2018). FROM POLLUTER PAYS PRINCIPLE TO BENEFICIARY PAYS PRINCIPLE: NEW ECONOMIC INSTRUMENTS FOR ENVIRONMENTAL PROTECTION. *Veredas do Direito*, 15(31), 37-66.

²⁷ 'Fiscal Policies to Curb Climate Change – IMF Blog' <<https://blogs.imf.org/2019/10/10/fiscal-policies-to-curb-climate-change/>> accessed 9 February 2022.

²⁸ Edgar Kiser and Steven M Karceski, 'Political Economy of Taxation' (2017) 20 Annual Review of Political Science 75 <<https://www.annualreviews.org/doi/10.1146/annurev-polisci-052615-025442>>.

²⁹ 'Pricing Carbon' <<https://www.worldbank.org/en/programs/pricing-carbon>> accessed 9 February 2022.

accumulation of carbon dioxide in the atmosphere can have the lasting impact on the way people are surviving on the planet earth. There is a need to urgently plug the carbon emissions. The global warming in the longer run may enable the harsh weather events like droughts, frequent floods, forest fires and others³⁰.

The adoption of tax measures in controlling the carbon emissions has to be a well-researched step³¹. The governments adopting the tax as a fiscal tool need to setup the committees to research on implications of having such a measure. The points of research area should be the success rate in other countries who relied on the carbon tax as a measure to control the emissions, the sectors which needs to be taken into consideration for adoption of tax in controlling the emissions³². The research on the adoption of such measures in the other countries especially the Nordic countries will be the good starting point for proceeding with the tax as a measure in other jurisdiction. The imposition of tax can act as an incentive for the industry in further regulating the carbon rich fuels³³. The imposition of tax for the usage of the carbon rich fuels and incentivizing the usage of the clean energy can go a long way in adopting the cleaner fuels³⁴. This is in turn can help in reducing the emissions. However the problem in making the immediate switch to the cleaner fuels is accessibility to such fuels. There is a need to devote the considerable financial resources in developing the area of clean energy. The solution to the problem of carbon emission may not get addressed simply only by imposing the tax. However, what is required is the dual efforts both on the side of designing the carbon tax structure but also the making the cleaner fuel reachable to the common men in terms of the cost. There is a need to develop the technology to develop the cleaner fuels and to scale up the production to such a level wherein the cleaner fuel become accessible to all.

In order to implement the carbon tax, there is a need to prepare the legislation to give the proposal a legal backing. If the requirement is to adjust the carbon tax structure within the present tax structure, then there is a need that an amendment in this regard needs to be brought to the legislature after the approval from the executive. The carbon tax has to be under the indirect tax regime. If the tax needs to have a place in addition to the present

³⁰ 'Climate Change Consequences' <https://ec.europa.eu/clima/climate-change/climate-change-consequences_en> accessed 9 February 2022.

³¹ 'Economic Issues No. 27 -- Tax Policy for Developing Countries' <<https://www.imf.org/external/pubs/ft/issues/issues27/>> accessed 9 February 2022.

³² 'Why Is Carbon Pricing in Some Countries More Successful than in Others? - Our World in Data' <<https://ourworldindata.org/carbon-pricing-popular>> accessed 9 February 2022.

³³ 'Sweden's Carbon Tax: Looking Back on 30 Years of Carbon Taxes' <<https://taxfoundation.org/sweden-carbon-tax-revenue-greenhouse-gas-emissions/>> accessed 9 February 2022.

³⁴ *ibid.*

indirect tax regime, then there needs to further amendment in the constitutional structure and a well-planned legislation need to be drafted where the operational structure for such a tax needs to be worked. The administrative issues needs to be addressed, in order to avoid the post implementation hassle in the operation of the tax. The tax rate is also critical in ensuring the compliance for such a tax. Too many compliance by the tax payers or the tax collectors could derail the proposal just after the implementation of such a tax. A well framed tax policy can be helpful in reducing the greenhouse gas emissions. The imposition of the carbon tax will also play in garnering the revenues for the government. The proper earmarking the usage of the carbon tax collected by government can also help in further mitigation of the greenhouse gas emissions³⁵.

5. Conclusion

The Carbon tax can be a useful fiscal tool in reducing the proportion of the greenhouse gas emission in the atmosphere. The Sustainable development goal 13 can be achieved through the adoption of a robust carbon tax policy. The example of the Nordic countries in the successful implementation of the carbon tax policy in any nation. There are empirical evidences available regarding the positive relationship between the imposition of carbon taxes and reduction in the greenhouse gases level. The impact of the concentration of the carbon dioxide in the atmosphere needs to be tackled through the creation of the sink and afforestation. The Climate fund should be created at the provincial levels in order to have the proper wherewithal to tackle the issue of greenhouse gases. There is no denial to the fact that the adoption of the climate tax policy is a tougher option available on the table. However, the fiscal tools do appear convincing both in dissuading the perpetrators from using the carbon rich fossil fuels and encouraging the development of clean energy fuels in the near future. The fight against the climate change needs a coordinated efforts on the global level. It should not be treated as the issue grappling the handful nations or threatening the island nation. The issue should concern and bother every existing human being. In order to handover to the upcoming generations a safer future, we need to take urgent actions in curing the climate change. The international efforts taken at the regular intervals needs to include the accountability for the better implementation of the mitigation programmes.

³⁵ 'Taxes on Polluting Fuels Are Too Low to Encourage a Shift to Low-Carbon Alternatives - OECD' <<https://www.oecd.org/tax/taxes-on-polluting-fuels-are-too-low-to-encourage-a-shift-to-low-carbon-alternatives.htm>> accessed 9 February 2022.

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