AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

The EU carbon border tax. A sustainable market-based instrument or an obstacle to the free trade of goods?

Luna Aristei*

16 dicembre 2021

Summary: 1. Introduction. – 2. Market based mechanisms and environmental taxes: pros and cons. – 3. Carbon Taxation. Different examples from different countries. – 4. The EU carbon border tax. Is it the future? – 5. Conclusions.

1. Introduction

The principle of sustainable development[1] has now become part of many States' policies after the approval of the United Nations 2030 Agenda in 2015. The Agenda was signed by the governments of 193 UN Member States on 25 September 2015, and it contains 17 Sustainable Development Goals (SDGs) to 2030, replacing the eight Millennium Development Goals (MDGs) as of 2015. These goals are divided into 169 targets, or milestones, to be achieved by 2030 to pursue international environmental, economic, social and institutional sustainability. These goals involve all government sectors, from the public to the private ones, and in particular private companies, civil society and information and cultural operators. Between these, there is SDG 13, which concerns the fight against climate change by setting targets, as in the Paris Agreement[2], that take into account not only mitigation but also adaptation to climate change.

* PhD student in Law and Business, LUISS Guido Carli.

[1] The principle of sustainable development was introduced in the 1987 Brundtland Report as a development that meets the needs of the present generations without compromising the ability of future generations to meet their own.

[2] The Paris Agreement was reached during the Conference of the Parties (COP) of the 1992 Convention on Climate Change on December 2015. It is the first binding climate change agreement and it sets for the first time a climate target: to reduce the average global rise temperature of 2°C degree with a more stringent aim of 1.5°C degree.

AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

Market economies are designed to reward those who create net value, rather than those who simply redistribute value in zero or negative sum games. When the production of a good causes pollution, the costs of this pollution must therefore be paid by those who make the decision to produce and consume the product, rather than by unrelated third parties. Otherwise, producers and consumers can forcibly redistribute welfare from those third parties to themselves. Without bearing the full costs of their actions, such producers and consumers have an incentive to engage in transactions even when these transactions cause net harm to society after calculating the external costs incurred by their victims. To safeguard the fundamental principles of freedom and net value creation, economic agents must therefore bear the full costs of their actions. Carbon pricing contributes to this 'internalisation of costs'.

The aim of this paper is to analyse how to fight climate change trough the use carbon taxes. In particular, we will find how the new EU carbon border tax can replace the existent climate change mechanisms, such as the Emission Trading System.

2. Market based mechanisms and environmental taxes: pros and cons

Various treaties (such as the Brundtland Report of 1987, the Rio Declaration of 1992 or the Maastricht Treaty of 1992) begin to strengthen environmental policy on the basis of principles such as sustainable development. In the wake of these documents, it became clear that the existing institutions based on command and control - which concentrated decision-making power in the hands of public institutions - were no longer sufficient. In fact, the idea that market failures are the main cause of environmental degradation began to emerge. It is therefore in the market that decisive mechanisms must be found to implement the new-born principle of sustainable development[3]. In those years, therefore, economic instruments for environmental protection, such as taxes, tariffs and tradable permits, began to be used to guide the market in determining the right price for environmental resources and services and the costs of polluting activities[4]. This is ensured through the establishment of: artificial markets, tradable property rights (such as the emissions trading scheme), taxes and fees on polluting activities (such as waste or air emissions), certification marks, etc[5].

[3] See D.M. ROODMAN, *La ricchezza naturale delle nazioni. Come orientare il mercato a favore dell'ambiente*, Edizioni Ambiente, Milano, 1998; M. BUCELLO – M. CAFAGNO, *Inquinamento*, in *Nuovo Dig. Disc. Pubbl.*, Giappichelli Editore, Torino, 2005; M. CLARICH, *La tutela dell'ambiente attraverso il mercato*, in *Diritto pubblico*, n. 1, Il Mulino, Bologna, 2007, pp. 219-240.

[4] EUROPEAN ENVIRONMENTAL AGENCY, *Using the market for cost-effective environmental policy. Market-based instruments in Europe*, EEA Report n. 1, 2006.

[5] COMMISSION OF THE EUROPEAN COMMUNITIES, *Bringing our needs and responsibilities together. Integrating environmental issues with economic policy*, 20 September 2000, COM(2000) 576 final.; COMMISSION OF THE EUROPEAN COMMUNITIES, *Green Paper on market-based instruments for environment and related policy purposes*, 28 March 2007, COM(2007) 140 final; EUROPEAN PARLIAMENT, *GDP and beyond – Measuring progress in a changing world*, 20 August 2009,

AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

Before analysing the market instruments, a brief parenthesis should be open on the EU Emission Trading Scheme (EU ETS). The EU ETS is a cornerstone of the EU's climate change policy and a key instrument for cost-effective reduction of greenhouse gas emissions. It is the world's largest CO2 market and it was established in 2005. It operates in all EU countries, plus Iceland, Liechtenstein, UK and Norway, and it limits emissions from around 11 000 installations in the power sector and manufacturing industry, as well as airlines operating between these countries. The EU establishes the total volume of greenhouse gases that can be emitted (*cap*) and it distributes among States the emission allowances. An allowance correspond to a tonne of carbon dioxide (CO2) that can be emitted, and the total amounts of permits decrease every year to reach the EU 55% reduction of greenhouse gas emissions by 2050. Auctioning is the standard method of allocating allowances under the EU ETS, which is the more transparent system that applies the "polluter pays" principle. This means that companies have to buy an increasing percentage of allowances through auctions if they exceed their permitted emissions ceiling (*trade*). Even if the auctioning method is increasing over time, some allowances are still freely assigned for those sectors in which the risk of carbon leakage is very high, which consists in the transfer of polluting production to countries with less strict or no emission limits, with obvious environmental drawbacks.

Regarding economic instruments, they have the capacity to remedy market failures, deliver cost-efficient results, offer flexibility to companies, stimulate their technological innovation and support employment[6]. They also make it possible to manage the environment in line with the principle of sustainable development by integrating social, environmental and economic aspects.

The forerunners of economic instruments for reducing polluting emissions into the environment are Pigou and Coase, who theorised mechanisms based on the "polluter pays" principle, according to which who pollutes have to pay for that pollution. Pigou[7] suggests using taxation as a means of disincentivising pollution, equal to the cost of the damage caused: the public authority sets the level of taxation by passing the costs on to companies that do not meet the set standards. In order to be efficient, this tax should correspond to the marginal external cost of correcting the negative externality, as firms have to integrate the cost of pollution into their production. Consequently, with the imposition of such a tax, the final product fully reflects the costs required for its production.

The mechanism envisaged by Coase[8], on the other hand, is based on imposing a limit on production, making limited access to a scarce resource; it is then up to the

COM(2009) 433 final. See also F. GIOVANNELLI – I. DI BELLA – R. COIZET, *La natura nel conto. Contabilità ambientale: uno strumento per lo sviluppo sostenibile*, Edizioni Ambiente, Milano, 2000.

[6] EUROPEAN COMMISSION, *European values in the globalised world*, Brussels, 20 October 2005, COM(2005) 525 final and EUROPEAN COMMISSION, *Green Paper*, *ibidem*.

[7] A. C. PIGOU, *The Economics of welfare*, Palgrave Macmillan, London, 1932.

[8] R.H. COASE, *The problem of social cost*, in *Journal of Law and Economics*, The University of Chicago Press, Chicago, vol. 3, 1960.

AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

market actors to predict who can access to the resource according to market forces. Based on this Coase theory, later demonstrated by Dales[9] and Montgomery[10], tradable permits were established.

Pigouvian and Coaseian economic instruments lead to the same result, although they involve different practices; for example, in Pigou's taxation it is the State that benefits from the tax revenues, whereas in Coase's restrictions the economic benefit of higher prices as a result of the restrictions goes to producers.

Alongside these measures, sustainable development can be ensured with economic measures capable of directing the behaviour of individuals by influencing production activities. This is an evolution of the command and control system that affects the choices of individuals. The instrument adopted can intervene on various aspects of the economic system, provided that the economic equilibrium resulting from market relations contributes to environmental protection, inserting the environmental variable into the system where it is not spontaneously present. These are different instruments with different public incidence, greater in the hypothesis of the so-called environmental tax aimed at incentivising or disincentivising certain behaviours, or in the mechanisms of the so-called cap and trade which provide for a maximum ceiling and leave the allocation of target resources to market dynamics among operators within this limit, creating an artificial market (as for the EU Emission Trading System). It is then up to the public sector to monitor the overall price of emissions by adjusting the cap level so as to ensure that the price of pollution corresponds to the social costs of reductions, an aspect not included in the Pigouvian tax. Alternatively, the public sector can have less impact with operators' voluntary behaviour; in this case operators decide to direct consumer choices towards virtuous products or entrepreneurs (think of environmental certifications of products such as eco-label[11] or of production systems such as EMAS[12]).

Between authoritative interventions and market-based instruments such as eco-labels, there are mixed remedies[13] such as eco-taxes. These instruments reflect trust in the quality of information held by individuals and their behaviour towards the environment and combine public decisions with market calculations. The main actors are companies and public institutions, and nowadays the separation between regulatory

[9] J.H. DALES, *Pollution, Property and Prices: an essay in policy making and economics*, University of Toronto Press, Toronto, 1968.
[10] W.D. MONTGOMERY, *Markets and Licences and Efficient Pollution Control Programs*, in *Journal of Economic Theory*, Elsevier, Amsterdam, n. 5, 1972, pp. 395-418.
[11] A volounteer certificate that certifies that a specific product is green and sustainable.
[12] EMAS is an European certificate which attests that companies and organizations have an environmental management system based on the ISO14001 rule.
[13] Some authors talk about "hybrid instruments" between *command and control* mechanism and *standard*'s determination. In M. CAFAGNO – F. FONDERICO, *Riflessione economica e modelli di azione amministrativa a tutela dell'ambiente,* in P. DELL'ANNO – E. PICOZZA (eds.) *Trattato di Diritto dell'Ambiente,* Cedam, Padova, Vol. I, 2012, p. 497.

and economic instruments is not so clear-cut, so most of the latter support the former in order to complement each other appropriately[14].

Through these instruments, the public authority modifies the cost of access to the environmental system by directly or indirectly assigning a price to natural resources or services that are otherwise freely accessible and free of charge. It is, therefore, a price set collectively and not on the basis of the matching of supply and demand. However, the collective decision is still influenced by individual cost-effectiveness judgments and market calculations, so that each recipient is able to compare the price charged for a resource with the expenditure he or she would otherwise have to incur to limit its consumptions, in order to make the most convenient choice.

However, the benefits that the State guarantees as a result of paying taxes are not always proportionate to the payment itself. This non-proportionality differentiates taxes from duties, although the boundary is very blurred and the two terms are often used synonymously.

The imposition of taxes can then be translated into different applications. For example, use-related fees, sewage taxes, product taxes, tariff charges or authorisation and control fees[15].

Fiscal measures are essential for circular taxation, i.e. taxes that discourage unsustainable behaviour (e.g. pollution) by individuals and companies and for encourage sustainable development and behaviours. The latter can be stimulated by means of reduced rates (excise duty or VAT) for those productions that ensure a long life cycle of products, limit waste production or improve products' life cycle[16]. The imposition of such environmental taxes implements the circular economy model and ensures resource-efficient development. Most taxes are based on the consumption of energy or energy products (e.g. excise duties) or on transport, but there are no taxes on environmental resources to limit their use in favour of efficient industrial processes. Thus, it can be said that environmental taxation operates on two fronts. The first, negative, which taxes waste and pollution; the second, positive, that provides tax breaks to stimulate productive innovation[17].

According to the economic literature, an optimal tax is able to stimulate the same results as the imposition of an ideal standard, but leaving it to the market to determine the price on the basis of a comparison of the amount of the tax and the personal pollution reduction costs. The aim of this mechanism is to reward efficiency and avoid wastefulness, which is covered by undifferentiated and rigid constraints.

[14] W.J. BAUMOL – W.E. OATES, *The Theory of Environmental Policy*, Cambridge University Press, Cambridge, 1988; T. TIETENBERG, *Economia dell'ambiente*, McGraw-Hill Education, New York, 2006.
[15] More specifically, examples of taxes are those linked to sulphur dioxide emissions, those levied on batteries or spent batteries or the more recent one on plastics.
[16] A.F. URICCHIO – G. CHIRONI – F. SCIALPI, *Sostenibilità e misure fiscali e finanziarie del D.L. Clima*, in *Rivista Giuridica AmbienteDiritto.it*, n. 3, 2020, p. 5.
[17] For example, Article 15 of the enabling Italian act for tax reform No. 23/2014 provides incentives for the purchase of goods for environmental innovation.

AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

However, taxes are not exempt from criticism[18]. In fact, they can be compared to a sort of 'right to pollute', a criticism that is out-dated since, in fact, even the command and control mechanism in some way provides for a permit to pollute[19]. Other authors fear that such a tax might be passed on with the price of goods; however, this hypothesis also extends to compensatory sanctions resulting from non-compliance with obligations and prohibitions. At the same time, it would be inefficient to impose a very high tax that would turn into a ban, or even one on those operators who have homogeneous pollution reduction costs[20]. Other criticisms are that if all taxed operators had to bear the same pollution abatement costs, the same results would be achieved with less effort[21]. In addition, if the environmental costs of a pollution-producing activity were so high as to lead to a tax so punitive as to constitute a substantial ban, the flexibility and meaning of the model would be lost[22].

The first body that decided to use taxation to protect the environment was the OECD (Organisation for Economic Co-operation and Development), which, however, focused exclusively on damage to natural resources as a cost to be eliminated. The OECD studies were mainly based on the notion of negative externalities and on the Pigouvian concept, which was then also taken up by the European Commission to delineate environmental taxation with a negative and specific polluting impact on the environment as its tax base. However, on the basis of Articles 113 and 115 TFEU, Europe, and in particular the Council, can only adopt taxes by unanimity, leaving the determination of taxation systems to individual Member States. However, Europe can influence the design and use of national taxes.

Nevertheless, taxation is seen as an excellent economic instrument for environmental protection and sustainability. While until a few years ago taxation was placed on the same level as other economic instruments such as subsidies and tradable permits, the OECD's 2010 paper *Taxation innovation and the environment*[23], puts environmental taxes at the heart of economic instruments for environmental purposes. This demonstrates that taxation of pollutant emissions, at least in theory, can benefit

[18] See, for instance, M. BRESSO, *Per un'economia ecologica*, Carocci Editore, Roma, 1993.
[19] F. ROMANI, *Strumenti di politica economica per la tutela dell'ambiente*, in G. ALPA – F. PULITINI – S. RODOTÀ – F. ROMANI (eds.) *Interpretazione giuridica e analisi economica*, Giuffrè Editore, Milano, 1982.
[20] On the criticism of corrective taxes, see: F. ROMANI, *Strumenti*, *ibidem*, pp. 232 ff.; W.J. BAUMOL – W.E. OATES, *The Theory*, *ibidem*, pp. 156 ff.; M. BRESSO, *Per un'economia ecologica*, Carocci Editore, Roma, 1993, pp. 219 ff.; A. BARILETTI, *Uso delle risorse ambientali e analisi economica*, in S. GRASSI – M. CECCHETTI – A. ANDRONIO (eds.), *Ambiente e diritto*, Olschki, Firenze, 1999, pp. 101 ff.; OECD, *Environmentally Related Taxes in OECD countries. Issues and strategies*, OECD, 2001, https://www.oecd-ilibrary.org/environment/environmentally-related-taxes-in-oecd-countries_9789264193659-en; I. MUSU, *Introduzione all'economia dell'ambiente*, Il Mulino, Bologna, 2003; M. CAFAGNO, *Strumenti di mercato a tutela dell'ambiente*, *ibidem*, pp. 192-195.
[21] F. ROMANI, *Strumenti di politica*, *ibidem*, p. 239.
[22] *Ibidem.*
[23] See also OCSE, *Environmental Taxation: a guide for Policy Makers*, OCSE, 2011, in https://www.oecd.org/env/tools-evaluation/48164926.pdf.

AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

the environment by stimulating technological innovation to reduce the incidence of taxation on emissions. In such cases, the reduction or elimination of emission damage is set as a prerequisite for taxation and not as an extra-fiscal purpose of the tax. The effect that is presumed to derive from the tax relating to the search for innovations to contain polluting emissions remains as an objective extraneous to the tax case with the consequence that the increase in the tax is directly proportional to the drive in the search for innovative mechanisms. It follows that the tax must act both as a reparative and reductive instrument and as an incentive mechanism for innovation and research.

According to the OECD document quoted above, an environmental tax exists if the taxable item is a physical unit of something for which there is scientific evidence of the negative effects it may cause in the environment if it is used or released. The negative impact must be understood as a reversible deterioration of environmental assets (activities causing irreversible damage being always prohibited, otherwise actions that might produce them would be justified) or a reduction in their supply, while the physical unit might be a unit of an emitted substance or of a specific natural resource[24]. Thus, there must be a causal relationship between the physical unit causing a scientifically demonstrated damage or deterioration to the environment and the taxable amount of the tax itself[25].

The correct application of an environmental tax presupposes the precise identification of the tolerable pollution, to be assessed case-by-case on the marginal damage associated with the emissions and the marginal costs of activities aimed at reducing them. In fact, an economic pressure mechanism containing errors or underestimations regarding the environmental effects of conduct could create distorted incentives, pushing recipients towards environmentally harmful behaviour[26].

There are different types of environmental taxes. First of all, there are commutative taxes where a price is paid in return for a counter-performance. On the basis of the rules of internalisation of environmental externalities, the commutative nature of the tax makes it possible to calculate the polluting effect of the anthropogenic activity carried out by charging the person responsible for its remediation[27]. One example is the Italian waste collection and disposal service, which is compulsory and the levy is commensurate with the cost of the service (commutative and not contributory). Such commutative taxes can undoubtedly play an important role in the payment of environmental protection services.

Then there are special purpose taxes with the environment relevant as an extra-tax purpose of the tax, without penetrating the tax base[28]. Such purpose taxes are

[24] F. MARCHETTI, *I tributi ambientali*, in R. FERRARA – M. A. SANDULLI (eds.), *Trattato di diritto dell'ambiente*, Tomo II, Giuffrè, Milano, 2014, p. 284. See also F. GALLO – F. MARCHETTI, *I presupposti della tassazione ambientale*, in *Rassegna tributaria*, Wolters Kluwer, Milano, 1999.
[25] F. ROMANI, *Strumenti*, *ibidem*, p. 235; A. BARILETTI, *Uso delle risorse ambientali*, *ibidem*, pp. 108 ff.
[26] M. CAFAGNO – F. FONDERICO, *Riflessione*, *ibidem*, p. 524.
[27] F. MARCHETTI, *Tassa, imposta, corrispettivo o tributo ambientale?*, Maggioli editore, Rimini, 2004.
[28] F. GALLO – F. MARCHETTI, *I presupposti*, *ibidem*.

imposed with a constraint on the destination of the revenue and do not seem to fall within the OECD definition of environmental tax. In particular, if the revenue is earmarked to finance environmental remediation works, there is a violation of the Community principle of 'the polluter pays', since the cost of remediation would not be borne directly by the polluter but by the entire community[29]. Thus, environmental purpose taxes are contrary to that principle whenever they are imposed not directly on the polluter, but on the business community as a whole, and the burden is distributed among that community to the advantage of the polluter.

For the sake of completeness, mention should also be made of tax concessions that provide a tax reduction to encourage companies to make additional investments to make their plants more sustainable. Tax concessions have long been debated because of their close correlation with State aid[30]. However, the OECD paper has allowed the use of tax instruments to encourage research and innovation by providing for the possibility of using tax breaks in combination with environmental taxes.

On the opposite of taxes, there are subsidies that stimulate the reduction of pollution instead of taxing its growth. So, while taxes tax the growth of pollutant levels, subsidies aim to stimulate the reduction of pollutants by promoting the containment of environmental degradation and internalising the social benefit of anti-pollution measures. So, like taxes, subsidies[31] aim to internalise the consequences of a behaviour, but while taxes focus on negative externalities, subsidies focus on positive ones. However, subsidies are more inefficient than taxes because the taxpayer has to pay for the monetary support, which increases the costs of the incentivised activity and may lead to new externalities from which further polluting activities may arise[32]. It should not be underestimated that improper use of subsidies can lead to distortions of competition. Subsidies can be divided into Environmentally Favourable Subsidies (EFS) and Environmentally Harmful Subsidies (EHS) depending on whether they produce positive or negative effects on the environment. However, classification is not always straightforward, as knowledge of all the impacts of subsidies is required, in addition to the fact that very often a subsidy has both positive and negative effects on the environment[33].

[29] F. MARCHETTI, *I tributi*, *ibidem*, p. 289.
[30] *Ibidem*, pp. 290-294.
[31] Examples of incentives include benefits for companies adhering to environmental management systems or EMAS, or subsidies provided for the cost of modernising facilities. For more details, see: W. J. BAUMOL – W. E. OATES, *The Theory*, *ibidem*, pp. 211 ff.; I. MUSU, *Introduzione*, *ibidem*, pp. 53 ff.; F. ROMANI, *Strumenti*, *ibidem*, p. 234.
[32] A. BARILETTI, *Uso delle risorse*, *ibidem*, pp. 101 ff.
[33] In addition, many measures are subject to reassessment between EFS and EHS. For example, support for dairy buffalo farming is considered EFS in terms of emissions but could be changed to EHS if it was made conditional on the use of good environmental husbandry practices. MINISTERO DELL'AMBIENTE E DELLA TUTELA DEL TERRITORIO E DEL MARE, *Catalogo dei sussidi ambientalmente dannosi e dei sussidi ambientalmente favorevoli*, 2017 e 2018, in https://www.minambiente.it/pagina/catalogo-dei-sussidi-ambientalmente-dannosi-e-dei-sussidi-ambientalmente-favorevoli.

AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

Then there are the implicit subsidies that differentiate the level of taxation to encourage the adoption of more or less polluting techniques and technologies. In Italy, an example of implicit subsidy is given by the case of petrol/diesel: gas oil is cheaper than petrol, which encourages greater use of diesel vehicles. However, this leads to a significant distortion, encouraging the purchase and use of vehicles that are more polluting and produce greater negative environmental externalities. Despite the fact that the European Commission has stressed the need to eliminate excise duties that are more favourable to diesel than to petrol, many countries continue to apply this dualism, such as Italy[34].

Thus, an environmental tax will change behaviour if its price signal is strong enough and if it targets the right actors. Also, an environmental tax expenditure will improve the environment if it rewards activities that otherwise would not have taken place.

In conclusion, it is not the environmental damage that is the object of environmental taxation, but the environmental good. In fact, providing for a tax on damage would in itself be contrary to the purpose of taxation to compete with public expenditures, since a tax that affects damage it's efficient if generates the less revenue possible; in order to be environmentally efficient, in fact, a tax that has environmental damage as its premise should not aim at acquiring revenue.

Therefore, commutative taxation appears to be the most appropriate way of taxing polluting emissions while ensuring compliance with the EU principles set out in Article 191 TFEU, including the 'polluter pays' principle. With this tax, environmental protection services can be financed and those who cause environmental damage through their activities, which are not necessarily economic, can be affected, so that the revenue from the tax can be used to repair the damage. Together with the commutative tax, there can be tax concessions that encourage the adoption of environmentally correct behaviour, and taxes on human activities that affect the environment regardless of the damage caused[35]. In this last hypothesis, therefore, the premise is the environment itself considered as a constitutionally protected value, the revenue from which must be allocated to general taxation in implementation of the EU principles of precaution and 'polluter pays'[36].

3. Carbon Taxation. Different examples from different countries

One of the most used environmental taxes is the carbon one.

[34] L. GIAMPIETRO, *Riflessioni sulla tutela dell'ambiente e sulle proposte di riforma di fiscalità ambientale*, in *Ambiente & Sviluppo*, n. 11, 2019, p. 819.
[35] F. GALLO, *Le ragioni del fisco. Etica e giustizia nella tassazione*, Il Mulino, Bologna, 2011.
[36] F. MARCHETTI, *I tributi*, *ibidem*, p. 300.

AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

Carbon tax internalises the cost of pollution into production costs, leading producers to change their production structure to one with lower costs. At the same time, consumers, who pay the price of consuming fossil fuels, are steered towards new and more sustainable goods.

The carbon tax is one of the main instruments available to States to reduce polluting emissions. Basically, according to authoritative theory, all environmental taxes can be considered as carbon taxes, since they all intervene, to a greater or lower extent, to combat adverse climate phenomena[37]. However, the opposite can also be the case, when properly environmental taxes produce damage to the ecosystem, such as no taxation of aviation fuel.

Carbon taxes can act as incentives or be punitive and they are divided into two types: those for which the revenue is spent, in whole or in part, on environmental needs (such as those invested in renewable technologies) and those aimed at directing behaviour towards green practices (such as those incentivising citizens to use efficient cars).

The ideal tax is one that is transparent to citizens, aims to change the behaviour of authorities, businesses and citizens, it is incentive rather than punitive, it is part of a broader tax strategy and it openly declares its environmental intentions[38].

On the economic side, such taxes aim at eliminating negative externalities by ensuring proper cost allocation. To do this, as the consequential costs of resource use are difficult to calculate, taxes should be close to the place of production, so that they can be applied at every stage of production. In places where such taxes are first introduced, citizens could be offered so-called 'tax swaps', allowing them to offset environmental taxes with other tax reductions. This would reduce environmental impacts and benefit citizens elsewhere.

The carbon tax is a different mechanism than the cap-and-trade system. In fact, with this tax, the price is not determined on the basis of market trends but it is fixed per unit of emission. This makes the price of emissions predictable in the short term, and by imposing a fixed cost on the combustion of hydrocarbons in proportion to the quantity of carbon dioxide released, any CO2 emission is penalised. This would discourage emissions and encourage technological innovations and consumption of more sustainable forms of energy.

Nevertheless, the carbon tax can have the same effect as the cap-and-trade system, even if it is much broader in scope, applying to all carbon emitters. A carbon cap-and-trade system can limit emissions based on price changes in the market, but it is also subject to market developments. It also ensures that emission caps are not exceeded by providing incentives for technological innovations to reduce emissions. A

[37] Such as those whose revenues that are invested in rail transport to reduce emissions, although this is not their main objective. In A. GIDDENS, *The Politics of Climate Change*, Polity Pr., Cambridge, 2011, p. 162.
[38] *Ibidem*, p. 163.

tax at a fixed price, on the other hand, can lead to greater fluctuations in polluting emissions: only if the carbon tax is set on the basis of optimal carbon emissions it can produce the same efficient effects as a cap-and-trade system. In addition, while in the cap-and-trade system there are transfers of money between private individuals who have an incentive to implement their own production systems, with the carbon tax only the State benefits from the revenues, thus reducing the economic capacity of the private sector to implement its own production systems.

However, carbon taxes generate a double benefit: a cleaner environment as a result of the taxation and a stronger economy as a result of the reduction of distortionary taxes, such as those on labour. The carbon tax has the power to secure sufficient revenue to finance tax reforms. If the revenue from taxation is used to finance the objective that the tax sets itself, there is an acceleration in the achievement of the environmental objective as well as an awareness among polluters that their taxation is not only made to condemn them for their pollution, but also to remedy for its consequences.

Not to be underestimated is the fact that the imposition of a tax on carbon means that the most polluting industries are charged more than the greenest ones. This must lead policymakers to consider the economic impact of the tax imposed, as well as whether taxpayers with a higher tax cost become less competitive in the market or even move their production to other lower tax jurisdictions. These considerations inevitably lead to a reassessment of taxes, providing for possible exemptions or reductions, and considering the possibility of using revenues to reduce other tax burdens or provide transitional relief.

With carbon taxation the government does not need to have detailed information on the costs and benefits of mitigation projects, but only on the marginal social cost of emissions. After the government sets the rate of a carbon tax to match this cost, the private sector determines, in a decentralised process, which mitigation projects bring the greatest private benefits per tonne of carbon reduced. Carbon taxation is also relatively easy to implement in countries with a high risk of corruption or low institutional capacity. This is because the government does not need to be able to observe where fuels are burned in the economy to price these emissions efficiently; instead, carbon prices can be imposed "upstream" on the carbon content of fuels. The government can then focus its oversight on a small number of sites imposing a carbon price at certain points of entry of fuels into the economy, and all subsequent activities using these fuels are covered by climate policy. It is then the private trading partners who pass the carbon price signal through the market, to remote regions, to informal activities, to all industries.

However, who bears the burden of the tax? Carbon taxes are regressive, and politicians and voters often argue against their implementation because of the relatively higher tax burden on low-income families. Hillary Clinton's 2016 presidential campaign abandoned the idea of implementing a $42 per tonne carbon tax in the US because of its likely regressive impact; furthermore, one of the arguments made when

AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

Australia's carbon tax was repealed in 2014 was that it increased the cost of living for households. Similarly, the 'Yellow Vest' movement, which began in France in October 2018, began as a protest against the proposed increase in the French carbon tax, arguing that it would place a disproportionately large burden on middle and working class households. Distributional concerns are thus an important reason as to why only a few countries have adopted carbon taxes and why these taxes only cover portions of the emitting sectors of their economies.

Carbon taxes were first introduced in northern European countries in the early 1990s. Denmark, in particular, introduced taxes on energy consumption, fossil fuels and electricity at that time, which were later extended to include a CO2 tax on households. However, the first CO2 tax in the world is the Finnish one in 1990. This tax was initially very low and designed for the transport, industry and household sectors, and it was gradually increased over time. These taxes pursued significant results over the years, reducing emissions in Finland by 2-3% in 2000 compared to what they would have been in the absence of the tax. The same is true for other countries such as Sweden[39], Iceland and Norway.

British Columbia introduced the carbon tax in 2008, based on the revenue neutrality model. The tax is levied on emissions from fossil fuels based on the percentage of carbon dioxide emitted. Taking exemptions into account, the tax covers about 70% of total pollutant emissions. Under the revenue-neutral approach, the revenue is used to reduce other taxes, which allows the government to provide tax relief to low-income taxpayers, homeowners and the elderly (addressing equity issues) and to reduce the general corporate income tax rate and the income tax rate for small businesses (addressing economic issues). Revenue generated will be used to provide additional tax relief for families, clean growth incentives for industry, and new green initiatives[40]. Other Canadian provinces have explored and executed carbon pricing measures, and, in October 2016, Prime Minister Justin Trudeau announced that Canadian provinces should adopt carbon pricing or implement a cap-and-trade program to achieve equivalent reductions[41]. However, to avoid excessive fragmentation across provinces, one solution would be to set a federal carbon price from the outset, but policy does not always allow this[42].

[39] In 1990, the Social Democratic government introduced the carbon tax. The tax started at $30 per tonne of CO2, a price that increased rapidly in the early 2000s. It then arrived at $130 in 2019, becoming the world's highest carbon tax imposed on households and non-commercial sectors. In J. ANDERSSON – G. ATKINSON, *The distributional effects of a carbon tax: The role of income inequality*, in Centre for Climate Change Economics and Policy, Working Paper No. 378, ISSN 2515-5709 (Online) and Grantham Research Institute on Climate Change and the Environment, Working Paper No. 349, ISSN 2515-5717 (Online), September 2020, pp. 6-9.

[40] BRITISH COLUMBIA MINISTRY OF FINANCE, *Budget and Fiscal Plan 2008/09 – 2010/11*, 9 February 2008; BRITISH COLUMBIA MINISTRY OF FINANCE, *Budget and Fiscal Plan 2016/17 – 2018/19*, 16 February 2016; BRITISH COLUMBIA MINISTRY OF FINANCE, *Budget 2018. Working for You. Budget and Fiscal Plan 2018/19 – 2020/21*, 20 February 2018.

[41] Prime Minister Justin Trudeau speech at the House of Commons, 3 October 2016.

[42] *Ibidem*.

AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

Ireland has chosen a different design for its carbon tax, driven in part by the political environment and conditions in 2010. The tax base covers CO2 emissions from liquid and fossil fuels and from peat, focusing only on fossil fuels and not on emissions from other sources, as British Columbia. However, unlike British Columbia, the tax does not apply to emissions from the electricity sector or large industrial installations, because these sectors are already included in the EU Emissions Trading System. The Irish tax was not designed as a revenue-neutral tax, due to the need to generate new revenue to tackle the fiscal crisis. However, the Irish carbon tax and related policies have addressed equity and competitiveness issues in other ways. The government expanded its fuel allowance programme prior to the implementation of the tax and established a new programme for energy retrofitting of buildings after the tax came into effect. In addition, the ability to use the carbon tax to generate new revenue avoided a further increase in income taxes, which could have had a more negative effect[43].

The Japanese carbon tax came into force in 2012 and was designed primarily as a means of raising revenue for climate change mitigation projects. The tax applies to fossil fuels with limited exemptions and the revenue is invested in energy efficiency projects and low-carbon technology. The aim of the tax is to raise revenue in a way that has a political link to the environmental problem rather than influencing behaviour through a price signal.

The UK applies a tax on carbon emissions within the EU ETS, subjecting them to two different forms of carbon pricing. Since 2013, the UK has applied a *'carbon price floor'*[44] to carbon dioxide emissions from electricity generation. Although emissions are subject to the EU ETS, the government determined that the low and fluctuating price of ETS allowances was not sufficiently encouraging investment in the low-carbon technologies needed to meet the UK's emissions reduction targets. Therefore, the government changed its taxation by imposing a new price on fossil fuels used in electricity generation. In this way, taxpayers subject to the carbon price floor will pay the levy plus the cost of any allowances needed to comply with EU ETS requirements.

In Europe, there is no a single tax on carbon, with the EU only directing different national policies. The matter is currently regulated by Directive 2003/96/EC[45], which contains mostly general guidelines. This directive was approved to avoid distortions of competition in the EU energy sector, providing common and general rules on the purpose of taxation and minimum rates, calculated on the basis of the volume of energy consumed, products used for heating, electricity and motor fuels. It is then up to the States to set the national rates. However, this directive is partly incompatible with the ETS, since it provides for volume-based rates and historical rates (resulting in unfair

[43] Finance Act, 2010, Part 3, chapters 1-3; Finance Act, 2011, Part 2, paragraph 44.
[44] Finance Act 2000, Chapter 17, n. 6.
[45] Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity.

AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

competition between energy sources, leading to unjustified tax benefits for some fuels over others) and it does not take into account the reduction of CO2 emissions. The European Commission therefore attempted to amend the directive in 2011 in order to create ground rules for common energy and carbon taxation. In particular, the proposal aimed at a stricter application of minimum rates, avoiding reductions for businesses, and trying to limit distortions in the internal market as much as possible. As the EU Commission noted in its proposal[46], Member States are starting to introduce their own CO2 taxes and approaches may differ. A patchwork of national policies could create difficulties for companies operating in different Member States and distort competition. However, the proposal has not entered into force, and the EU has currently shown interest in the creation of a carbon border tax, which is being developed.

US tax expenditures to encourage the construction of wind farms reward positive externalities, based on Pigouvian theory. Since 1992, the Federal Tax Code has provided an income tax credit for wind farms. Alternatively, operators can claim an investment tax credit equal to 30% of capital costs for an immediate tax benefit and, in addition, they were able to choose a direct cash subsidy instead of the investment tax credit for several years during the recession. Put in place in the short term to help the transition to renewable energy, this tax benefits gradually declined and ceased to exist for plants that started construction after 2019.

So, based on these examples, to mitigate climate change, a carbon price must be imposed on those consumer goods that are responsible for most emissions: transport, fuel, food, heating and electricity. These goods are, however, typically commodities and the distributional effect of carbon taxation is therefore likely to be regressive, the more unequal the distribution of income.

Following the signing of the Paris Agreement in 2015, countries around the world are trying to find ways to adjust their nationally determined contributions to the common goal of limiting global warming. Economists are, in a united and unprecedented way, recommending the implementation of carbon taxes as the greenest and cheapest way to achieve these emission reduction targets. At the same time, income inequality in the wealthiest States has risen steadily over the past four decades, in some cases to levels not seen since the late 19th Century. If rising income inequality makes the distributional effects of carbon taxes more regressive, it will be politically more difficult to implement carbon taxes in countries with high and rising inequality. Unfortunately, income inequality is high in OECD countries that are large emitters of greenhouse gases, such as the US, Japan, Germany, Canada and Australia. And where income inequality is relatively low, or carbon taxes are already implemented, such as the Nordic countries, GHG emissions are residual compared to the global total. To increase the political feasibility and equity of carbon taxes, policymakers in the world's

[46] EUROPEAN COMMISSION, *Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee, Smarter energy taxation for the EU: proposal for a revision of the Energy Tax Directive*, 13 April 2011, COM(2011) 168.

AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

largest economies therefore need to design a carbon tax policy that includes revenue recycling mechanisms, reductions in distortionary taxes, or other means of offsetting the regressive effect[47].

However, the low penetration of carbon pricing is largely due to people's aversion to taxes in general, and to carbon taxes in particular. Making carbon pricing more politically acceptable is therefore a precondition for stronger and more effective climate action. Polls show that individuals do not think that a carbon tax alone is effective in reducing emissions. Voters show a preference for allocating tax revenues to further emission reductions and are particularly enthusiastic about supporting low-carbon research and development, together with subsidies to promote diffusion. So far a great deal of political effort has gone into granting exemptions or permits to energy-intensive industries, often through grandfathering[48].

So it is a question of how revenue recycling could create real value for the economy and at the same time contribute to broad public support for achieving climate goals.

Countries with high carbon taxes, such as Sweden and Switzerland, have been successful in their implementation because they have used a mixed strategy of revenue recycling, with the revenue used partly for direct compensation to citizens, partly for green infrastructure spending and partly for industry compensation. On balance, these options should be evaluated as potential uses of revenue recycling along with the allocation of some revenue for an industrial decarbonisation fund[49].

The example of the Swedish tax[50] of €137 per tonne of CO2 shows convincingly that economies can indeed maintain high levels of growth and employment while significantly cutting GHG emissions across the board, and such effective decoupling brings to be optimistic about the potential effectiveness of carbon taxes. Much depends on how this emissions tax is set and collected in different parts of the world. Also, it depends on the integration of the carbon tax into existing carbon markets where identified emitters have to buy emission permits at the price based on the tax per tonne of CO2e to the extent that they want to continue emitting those greenhouse gases. Of course, the use that will be made of the revenues from the carbon tax will also be important. A part of this revenue will have to go to protect low-income households from rising energy and electricity prices. However, another part can be directed towards promoting low-carbon investments by financing promising mitigation and adaptation projects, directing funds mainly towards those projects that replace high-carbon goods and processes. Since carbon taxes will provide a major source of globally collected

[47] J. ANDERSSON – G. ATKINSON, *The distributional*, *ibidem*, pp. 28-29.
[48] LSE, *The future of carbon pricing: Consultation response*, August 2019, p.6.
[49] *Ibidem.*
[50] As reported by Sala the progressively increasing carbon tax in Sweden promoted a 25% reduction in carbon emissions between 1990 and 2015, while the country's GDP grew by 69% over the same period. In L. SALA, *The Swedish Carbon Tax: How to Tackle Climate Change in an Efficient Way*, in *Traileoni*, Bocconi University, Milano, 5 December 2017.

revenue, they can also usefully finance transfers of capital, technology and resources from rich to poor countries at the heart of the global fight against global warming. So, carbon taxes can replace or help reduce other less productive (from a fairness or efficiency perspective) taxes, such as labour-restricting payroll taxes or regressive consumption taxes, and thus serve as a linchpin for broader tax reform[51].

So, in conclusion, carbon taxes have the advantage of imposing a sufficiently high, stable and therefore predictable price on greenhouse gas emissions with which to assess the profitability of investment projects, evaluate climate-related risks and pursue emission reduction targets. Where environmental taxes hit, consumers and producers have clean alternatives with which to reduce their tax burden. One of the International Monetary Fund (IMF)'s key arguments is that such a carbon tax cannot be set at a uniform level[52]. On the contrary, IMF research has shown large differences between countries when it comes to the costs of internalising their respective contributions to global warming and thus justifying very different carbon tax rates. For Saudi Arabia and Iran, for example, these costs (and thus ideally also the carbon tax rates) would be very high not only because of their leading position in oil production, but also in light of how artificially their theocratic governments have maintained petrol prices and electricity costs for decades. In India and China, costs (and thus also rates for any carbon taxes) are kept high because of their over-reliance on coal, particularly dirty fossil fuel. On the other hand, Brazil has effectively negative costs since it is the supplier of the world's largest carbon sink, the Amazonian rainforest.

At the same time, a single, globally harmonised carbon price, rising at an appropriate rate and applying to all emission sources, could help achieving cost-effective reductions in greenhouse gas emissions and improving tax's cost-effectiveness by equalising abatement costs at the margin[53].

An attempt of this nature is the European carbon border tax.

4. The EU carbon border tax. Is it the future?

In recent years, the idea of creating a carbon border tax has emerged in Europe in compliance with the European Green Deal[54] and on the basis of two assumptions: it is not possible to avoid burning fossil fuels for all industries and they have the possibility to avoid paying the surcharge by moving their polluting activities out of Europe (*carbon leakage*) or by importing cheaper goods as they are not subject to stringent rules on emissions. For this reason, Europe devised the Carbon Border Adjustment Mechanism

[51] R. GUTTMANN, *Eco-capitalism*, *ibidem*, pp. 235-236.
[52] *Ibidem*, p. 161.
[53] LSE, *The future of carbon pricing: Consultation response*, August 2019, p. 2.
[54] EUROPEAN COMMISSION, Communication *'Fit for 55': delivering the EU's 2030 Climate Target on the way to climate neutrality*, Brussels, 14 July 2021, COM/2021/550 final.

AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

(CBAM) as part of the Green Deal to protect EU companies that are subject to higher costs resulting from stricter emissions regulations.

The European Commission Communication "*Fir for 55*" declares that: CBAM is "*designed as a climate action instrument, it introduces a market dynamic that protects the integrity of EU and global climate policy by reducing GHG emissions in the EU and globally, and induces the relevant sectors to modernise, become more sustainable, and drive down their carbon content*"[55].

CBAM is a duty that applies to products imported into Europe from countries with less stringent emissions regulations in order to avoid *carbon leakage*, protect the EU market from unfair competition and encourage Member States to achieve high climate ambitions. The proposed EU regulation of 14 July 2021 determines the standard procedure for calculating product-integrated emissions, both direct and indirect[56].

EU importers will have to purchase carbon certificates equal to the price that would have been paid if the goods had been produced under EU carbon pricing rules. However, when a foreign producer demonstrates that he or she has already paid in a third country the price for the carbon used in the generation of the imported goods, this cost can be deducted in full for the EU importer.

Such border carbon adjustment mechanism is already in place in some regions of the world, such as California, where an adjustment is made to certain electricity imports, while other States are planning equivalent systems (such as Canada and Japan).

For this mechanism to be firmly accepted by businesses and third countries, it will be phased in starting in 2023 and only for a number of goods covered by the EU ETS that are at risk of carbon leakage, such as cement, aluminium and iron[57]. From that year onwards, a reporting system for these products will be in place to facilitate dialogue with non-EU countries and the functioning of the mechanism, while in 2026 importers will start paying a financial adjustment. In addition, CBAM revenues will contribute to the EU budget and go into the NextGenerationEU[58].

The CBAM will also be integrated with the ETS so that free allowances will be completely eliminated from 2026 and it will be based on a system of certificates to cover the emissions of products imported into the EU. However, the mechanism will apply gradually and in direct proportion to the reductions of free allowances allocated in the ETS[59], in order to ensure that importers are treated equally to EU producers.

[55] *Ibidem*, paragraph 4.
[56] Direct emissions are those over which the producer has direct control; indirect emissions are those derived from the electricity consumed in production. EUROPEAN COMMISSION, *Proposal for a Regulation of the European Parliament and of the Council establishing a carbon border adjustment mechanism*, Brussels, 14 July 2021, COM(2021) 564 final.
[57] These are the sectors at risk of relocation as well as those for which it was more feasible to bring them under the CBAM mechanism at the administrative level.
[58] It is estimated that this measure will be worth between EUR 5 and 14 billion per year. In https://www.rinnovabili.it/ambiente/politiche-ambientali/carbon-border-tax-ue-importazioni/.
[59] EUROPEAN COMMISSION, Communication *'Fit for 55'*, *ibidem*, paragraph 4.

AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

It will then be up to national authorities to authorise the registrations of importers in the mechanism and to sell CBAM certificates to them. Importers will be required to declare by 31 May each year the quantity of goods and emissions contained in those goods imported in the preceding year, and they will return certificates purchased in advance from the authorities corresponding to what was issued. This will also ensure that EU and non-EU producers pay the same carbon price[60].

So, EU-registered importers should be provided with information on the emissions of goods subject to CBAM. If no such information is available, default values for the carbon emissions of each product can be used to calculate the number of certificates to be purchased. It will then be up to importers to demonstrate their actual emissions during a reconciliation process and return the correct number of certificates.

Although all third countries will be involved in the mechanism in principle, some countries that are part of the ETS or have their own trading system will be excluded (such as Switzerland and the European Economic Area's States)[61]. Additionally, sectors and companies outside the EU with already low carbon production cycles or that apply a similar carbon pricing system will benefit from the mechanism[62].

But what are the consequences of such an introduction?

First of all, CBAM would encourage the decarbonisation of EU and non-EU industries and protect the competitiveness of companies. Moreover, this tax will make the price of imports reflect their carbon content.

At the same time, however, in order to prevent companies from relocating, there is a risk of violating the rules of the World Trade Organisation, which provide for equal treatment of similar products without discrimination on the basis of origin. Theoretically, therefore, CBAM should also be extended to EU products, which would pose a number of economic and political challenges[63]. In fact, the imposition of tariffs on imports of products generated by technologies using high levels of coal could be in contrast with Articles I and III of GATT. Under Article III of the GATT, State's taxes may not discriminate in such a way as to protect domestic products to the detriment of similar foreign products.

If the CBAM were to act as a protectionist measure, the WTO could block the EU initiative, which could be avoided if the EU earmarks part of the revenue from the tax to aid the green transition of the most disadvantaged countries[64]. Moreover, if the CBAM is simply coupled with the current redistribution of free ETS allowances, this would result in unjustified over-protection of European industries; but since free allowances are currently reserved for the sectors most prone to carbon leakage, a

[60] *Ibidem*.
[61] See EUROPEAN COMMISSION, *Carbon Border Adjustment Mechanism: Questions and Answers*, 14 July 2021, in https://ec.europa.eu/commission/presscorner/detail/it/qanda_21_3661.
[62] EUROPEAN COMMISSION, Communication *'Fit for 55'*, *ibidem*, paragraph 4.
[63] M.C. CAVUOTO, *Unione Europea: primi passi verso la carbon border tax*, in *Close-up Engineering*, 21 February 2021, https://energycue.it/unione-europea-primi-passi-verso-carbon-border-tax/22023/.
[64] https://www.rinnovabili.it/green-economy/green-market/carbon-tax-europea-bozza/.

duplication of market shields would be detrimental to EU competition rules and consumers[65]. However, the idea is to accompany the phasing out of free quotas with the CBAM, precisely to overcome the possibility of double protectionism.

To overcome these issues, the costs imposed on carbon productions in the European Emission Trading System could be compared to the duties on imported products. In this way, under Article II.2(a) GATT, the same burdens would be imposed on similar goods' productions based on their carbon footprint, regardless of whether they come from the EU or not. Otherwise, under Article XX GATT, the introduction of the carbon border tax would be justified on exceptions to the prohibition of discrimination, such as the protection of health or the conservation of exhaustible natural resources. Obviously, to implement Article XX, it would be necessary to demonstrate the causal link between the measure and the protection, which is not always easy in the context of decarbonisation policies. In fact, the exceptions under Article XX GATT cannot justify international trade restrictions or arbitrary or unjustified discrimination between countries with similar conditions. Therefore, abuses for protectionist purposes are not admissible. On the contrary, with the introduction of this carbon border tax, the EU should aim to align its sustainable production standards with those abroad.

However, there is more than just the WTO, as this tax could also cause retaliation against other countries that trade with Europe. These include Russia, which exports large quantities of energy resources to Europe, China, which among other things has introduced a national carbon market for Chinese companies along the lines of the EU's, and the United States.

There are also those who have opted for the inclusion of imports in the ETS, which would require foreign producers to purchase emission allowances[66]. However, this is not a feasible solution, as it would disrupt the mechanisms of the system, including the Market Stabilisation Reserve.

However, within the EU, the CBAM is particularly desired by industry groups, who are eager to compensate for the extreme increase in the price of emission allowances, which has reached around €50 per tonne of CO2 emitted, more than double the pre-Covid price. This exponential increase in the cost of EU emissions leads to serious competitive disadvantages for EU companies compared to foreign companies where there is no such taxation, as well as limiting investment in new technologies.

The procedure is currently open for comments, which will be submitted to the European Parliament and the Council in order to feed into the legislative debate.

[65] M. CAMPORESE – A. MINATI, *Il discorso sulla Carbon Border Tax europea entra nel vivo*, in *Il Caffè Geopolitico*, 23 July 2021.
[66] Such as the European Roundtable on Climate Change and Sustainable Transition (ERCST). In https://www.rinnovabili.it/ambiente/politiche-ambientali/carbon-border-tax-ue-importazioni/.

AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

5. Conclusions

Carbon tax aims at internalise the damage caused to the environment by pollution. There is no doubt that imposing both the EU ETS and taxation on an installation would lead to major distortions of competition, so the two instruments should be complementary but, above all, applied at central European level. Applying a tax only in certain countries would put installations located there at a disadvantage, since they would have to bear a double cost (allowances and tax). One might therefore consider applying the tax to different sectors that are not subject to international competitive pressures.

But can CBAM be considered the future of ETS?

First, both the ETS and the CBAM have the common objective of pricing greenhouse gas emissions through allowances and certificates. However, the former determines a maximum amount of emissions and allows trading, while the latter does not set quantitative limits on imports, ensuring that trade is not restricted. In addition, the ETS applies only to the EU context, the CBAM to imports into the EU.

In order to remain effective as an emission leakage measure, the tax must reflect the ETS price faithfully by mirroring the price of the ETS auctions through weekly averages. Weekly average prices are in fact able to faithfully reflect ETS price fluctuations by providing ambitious margins for importers to benefit from price changes while ensuring manageability of the scheme by administrative authorities.

Moreover, the price of ETS allowances is determined by the matching of market supply and demand, an upper limit of allowed emissions is set and scarcity of allowances is necessary to incentivise price increases. In contrast, there can be no cap on the number of CBAM certificates available to importers, and if importers are given the opportunity to trade these certificates, the CBAM price may no longer reflect the evolution of the ETS price. This would discourage decarbonisation in favour of carbon leakage, and would also lead to price differences between countries. Therefore, while trading of certificates is not allowed, the Regulation proposal on CBAM proposes, in paragraph 22, a system whereby authorities may purchase from importers a number of surplus certificates set in such a way as to allow importers a reasonable margin of amortisation of costs over the period of validity of the certificates, while safeguarding the environmental objective and prices.

The connection between CBAM and ETS is made with regard to the activities, which should be the same in order to ensure that imported products are not treated less favourably than similar products of EU origin. Furthermore, the actual selection of activities should consider materials and products covered by the ETS, ensuring that imported products are as energy intensive as EU products, setting the carbon price in the context of the ETS and avoiding carbon leakage.

So can we see the CBAM as the future of the ETS?

AMMINISTRAZIONE IN CAMMINO
Rivista elettronica di diritto pubblico, di diritto dell'economia e di scienza dell'amministrazione a cura del Centro di ricerca sulle amministrazioni pubbliche "Vittorio Bachelet"
Direttore Professor Giuseppe Di Gaspare
ISSN 2038-3711

As Article 1(3) of the Regulation proposal declares, the CBAM will progressively become an alternative to the ETS mechanisms to prevent the risk of carbon leakage, in particular free allocation of allowances in accordance with Article 10a of the ETS Directive[67]. In fact, CBAM aims to replace existing mechanisms by addressing the risk of carbon leakage in a different way, ensuring an equivalent carbon price for imports and domestic products. While, as we have seen above, some sectors of the ETS currently provide for free allocation of allowances to avoid carbon leakage, such a mechanism would ensure an equal result with the added taxation of polluting producers. While an operator subject to the free mechanism would tend to continue to operate in Europe because it does not have to pay for its emissions, the absence of revenue from the ETS and payment by the operator itself does not in fact provide an incentive to invest in new technologies, as the zero cost of emissions is undoubtedly cheaper. On the other hand, the gradual introduction of the CBAM with the parallelism of the gradual elimination of free ETS quotas would produce the same effects in terms of carbon leakage (the operator would still have the advantage of producing in Europe, even if subject to the ETS auction mechanism, since he or she would in any case be taxed if he or she imports its own goods produced in third countries, without discrimination between EU and non-EU production), but there would be advantages both on the environmental and financial levels.

On the environmental side, this would encourage operators to invest in green technologies to pollute less and thus incur lower costs in purchasing emission permits. On the other hand, taxing emission quotas by auctioning them or by taxing the entry of non-EU products would raise useful financial resources to be invested in sustainability and green financial plans such as the recent Next Generation EU.

The last issue to be resolved in order to consider such a CBAM optimal is that of trade relations with third countries with which Europe has a dense commercial exchange. Given that the European Commission has ensured compliance with international WTO rules and the absence of discrimination between domestic and foreign goods, it is necessary to establish a cooperative dialogue with third countries so that EU operators can see the competitive advantage of the entry into force of such a mechanism, which would for the first time treat European goods equally to foreign ones.

The question is now in Europe's hands to create a sustainable market-based instrument that is truly environmentally efficient.

[67] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.