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The sustainability gap in European horizontal agreements: the Car Emissions case

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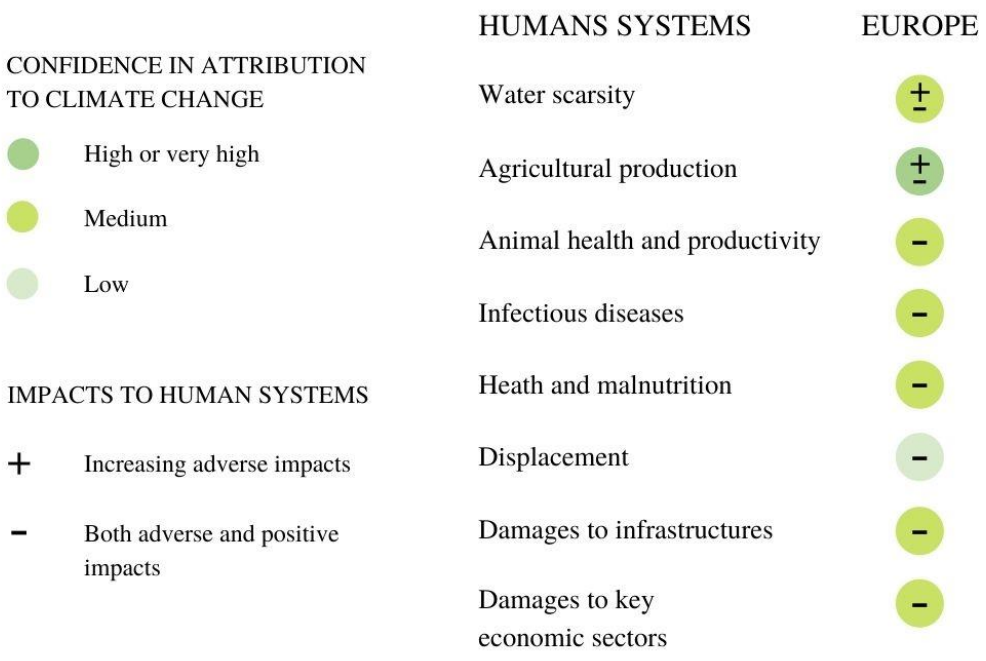
INTRODUCTION

It is undeniable that tackling climate change represents the most difficult challenge of our times, especially after centuries of polluting emissions and exploitation of natural resources by human activities. If actions are not taken now, our planet will become a hostile environment that will not leave any room for living organisms. The goal to reduce the increase in temperature is an imperative that cannot be ignored. The possibility of exceeding the 1.5° C limit for increasing global temperatures, as defined by global leaders during the COP26, will mostly have irreversible impacts.

Beside the multiple physical risks caused by increases in floods, wildfires and natural disasters that will affect humans and their livelihoods, the global economy will be deeply damaged. In the graph included in the last Intergovernmental Panel on Climate Change (IPCC) Report, the impact of climate change on natural and human ecosystems is revealed. The current image focuses on Europe, showing that climate change has high effects on water security and agricultural production, on human health, and on economic sectors and infrastructures. These effects are mainly adverse, causing water scarcity, reduced productivity due to stress on lands and animals, human nutritional deficiencies, destruction of inhabited lands, and damages to key economic sectors and infrastructures.

Figure 1: Attributed impacts of climate change on human systems in Europe



Source: IPCC. (2022). Summary for Policymakers. *In: Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press.

The only way to tackle the climate crisis is through a joint and comprehensive action that involves a variety of actors, both from the private and public sector. Competition law is not excluded from this discussion. Surely, competition does not have the same role that regulation by world leaders has. Nevertheless, this does not imply that there is no room for an effort from competition authorities. Moreover, competition has an impact on climate change in more ways that we could imagine. This impact is linked to the capital system that we currently live in, a productive mechanism mostly focused on profits designed to exploit the planet and its already scarce resources.

Leaving out the debate on the fairness of this system, it can be argued that the work of competition law is key to support the private sector in reaching sustainability goals. The reasons behind this thought are found in this dissertation, which shows, with a focus on the European Commission approach on horizontal agreements, that competition law is not only helpful but necessary to develop an economic system that respects the principles of sustainable development. However, there is an evident tension between the current European competition law and sustainability agreements. There is in fact some resistance in providing room for environmental objectives in the competitive assessments, still being anchored to a narrow vision of the mandate of competition law. This vision needs to be abandoned in favour of a more comprehensive approach that understands the urgency of the climate crisis and that it is ready to join the fight against climate change on the grounds of competition law competencies. In the words of Commissioner Margrethe Vestager: "Businesses have a vital role in helping to create markets that are sustainable in many different ways, and competition policy should support them in doing that."[1]

In the light of this, the work is structured as it follows. The first part will focus on the key concepts that provide the legitimation of environmental protection in the European Union framework: from the first steps towards environmental awareness to the principle of sustainable development, cornerstone of every sustainability initiative. Moreover, an analysis of the modern EU environmental legislative framework, mainly represented by the Green Deal, is performed, investigating its strengths and weaknesses. Based on the limits identified, a reflection over the role of competition law in reaching sustainable development is included. The second part will leverage from the use of economic theory to understand the differences in applying regulation or competition, and the dynamics between competition and cooperation in the sustainability field. Furthermore, after a consideration of the main challenges arising from applying the traditional competitive assessment to sustainability initiatives, methods of valuation of environmental effects as identified by the Dutch and Greek competition

[1] European Commission. (2019, October 24). *Commissioner Margrethe Vestager, GCLC Conference on Sustainability and Competition Policy, Brussels,* [Press release].

authorities will be analysed. The third part will instead narrow the focus of the work, reflecting on the sustainability gap in the current Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements. The key part of the work will be the analysis of a case study, the Car Emissions case, to explore the reasoning behind its assessment by the European Commission and providing a personal contribution on how the EC could have included a consideration of environmental damages. The fourth and last part will contain the revision of the current guidelines on horizontal agreements, reflecting on the steps made toward sustainability by the European Commission and on the gaps still present to this day. Finally, several suggestions on how competition authorities can enhance sustainability will be made, completing the work with the conclusion that there is still a long road towards the inclusion of sustainability initiatives in European competition law.

I PART – THE LEGITIMATION OF ENVIRONMENTAL PROTECTION IN THE EUROPEAN UNION FRAMEWORK

In the last century environmental awareness has increasingly grown due to main environmental disasters and emerging new research and studies. Starting from the 20th century, several key events that gave rise to environmental awareness can be identified.

In 1962 American marine biologist Rachel Carson published "Silent Spring", research that exposed how agricultural pesticides DDT were linked to damages of animal species and human health. Carson brought out this issue to the public eye, showing that human intervention was damaging nature and that there was an urgent need to regulate the agricultural industry in order to protect the environment. Another crucial step towards the increase of environmental awareness was the UN Conference on the Human Environment and UNEP in 1972. Also known as the Stockholm conference, it led to the creation of many national environmental protection agencies and of the United Nations Environment Programme (UNEP). However, the kickstart of environmental protection didn't stop other disasters like the 1984 Bhopal toxic chemical leak in India and the infamous Chernobyl explosion in 1986.

A turning point for environmental protection was the publication in 1987 of "Our Common Future", also known as the Brundtland Report, which engendered the term "sustainable development". The report referred to sustainable development as "a development that meets the needs of the present without compromising the ability of future generations to meet their own needs"[2]. This concept has been shaped throughout the years, making its appearance for the first time in a declaration published by the International Union for the Conservation of Nature in 1980, titled "Living resource conservation for sustainable development".

Nowadays, sustainability is often used as a synonym, but its broadness and vagueness raised criticism about the use of this term to refer to the values embodied in the concept sustainable development[3]. Literally, sustainability means "the capacity to maintain some entity, outcome or process over time"[4], a notion that is related but surely different from sustainable development.

[2] World Commission on Environment and Development. (1987). *Our common future*. Oxford University Press. p.43.

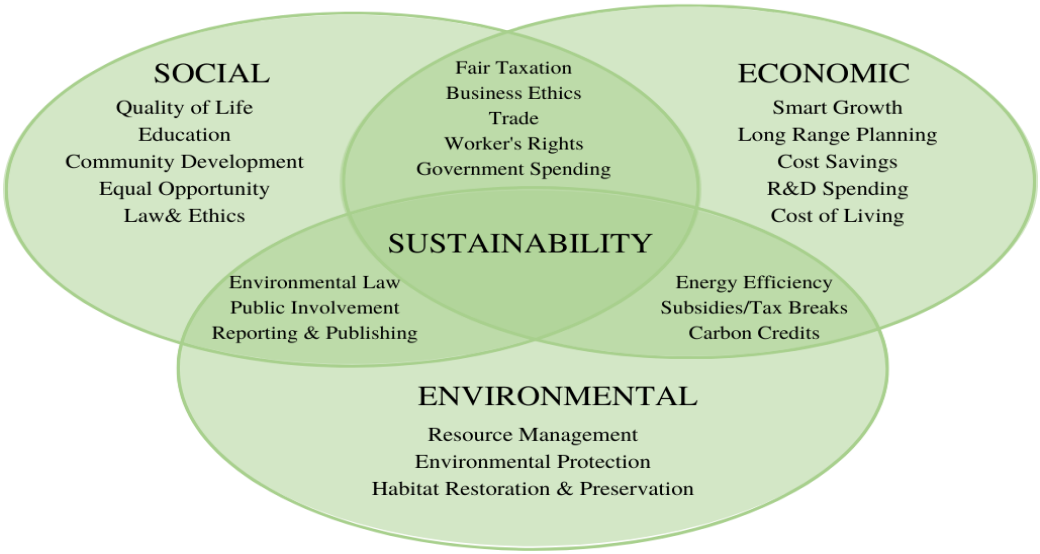
[3] Soini, K. and Dessein, J. (2016). Culture-Sustainability Relation: Towards a Conceptual Framework, *Sustainability*, (8)167.

[4] Basiago, A. D. (1999). Economic, social, and environmental sustainability in development theory and urban planning practice: *The environmentalist*, 19, 145-161.

The 1992 UN Conference on Environment and Development in Rio de Janeiro, also known as Earth Summit, strengthened the use of sustainable development in the environmental and political language, developing the Rio Declaration which better shaped its pillars and principles.

Looking more in depth into the concept of sustainable development, three pillars can be identified: environment, economy, and society. These elements balance each other off, meaning that economic growth needs to be associated with environmental protection and social equity. This translates into decisions that should generate economic value while preserving the equilibrium of natural ecosystems and promote the betterment of society[5].

Figure 2 The Three Pillars of Sustainable Development



Source: (Wanamaker, 2015).

In conclusion, as it can be understood by Figure 1, the interrelation among environment, economy and society is embedded in every action taken by governments, NGOs and corporates, and the concept of sustainable development gives the key to solve this intricate dynamic.

[5] Wanamaker, C. (December 15, 2015). *The Environmental, Economic, and Social Components of Sustainability.* www.soapboxie.com

1.1 Principles of sustainable development: the Rio Declaration

The Rio Declaration contains a series of principles that can be defined as the foundation of sustainable development. First and foremost, the precautionary principle, which is adopted when there is a potential risk of environmental or human health damage, often in the absence of scientific evidence.

A precautionary approach is based on the acknowledgment of a gap in scientific proofs of the actual impact of human activities on the environment. Its legal foundation can be found in the 15th article of the Rio Declaration, which states: "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."[6]

The origin of this principle can be traced back to the German law in the 1970s, more precisely in the legislation on air pollution with the "Vorsorgeprinzip", literally foresight principle. At the European level, it has been included in Article 191 of the Maastricht Treaty among the principles that constitute the environmental policy of the European Union. The EU Court of Justice (CJEU) broadened the scope of the principle by applying it also to the protection of human health in the case The Queen v. Ministry of Agriculture[7], which concerned the transmissibility of the so called "Mad cow disease" to humans. In the case of Genetically Modified Organisms (GMOs), the CJEU has been deeply challenged to implement the Precautionary Principle to minimize their potentially negative effects on the environment and on human health. There are several examples, one of them being the Monsanto Italy[8] case in which the CJEU ruled that the national evidence did not reveal "a necessity to implement safeguard measures in light of the Precautionary Principle, thereby setting the bar for proving risk closer to a standard of *real* than *hypothetical*"[9]. The broadness of the principle has led to different interpretations and opinions. It is still not clear whether it can be seen as a general principle of international law or a political guideline with no obligation. It is most agreed that the central element is the avoidance of a serious or irreversible damages in cases of scientific uncertainty, while when there is knowledge about the potential risks the prevention principle will be applied.

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[6] UN Conference on Environment and Development, 3-14 June, 1992, Rio de Janeiro.

[7] Regina v Ministry of Agriculture, Fisheries and Food, ex parte John James Dent and Mary Astrid Dent, Judgment of the Court (Third Chamber), 19 March, 1992, C-84/90 (United Kingdom).

[8] Monsanto Agricoltura Italia SpA and Others v Presidenza del Consiglio dei Ministri and Others, Tribunale amministrativo regionale del Lazio, 9 settembre 2003, C-236/01, 2003 I-08105 (Italia).

[9] Guida, A. (2021, May 9). The precautionary principle and genetically modified organisms: A bone of contention between European institutions and member states. *Journal of Law and the Biosciences*, 8(1), 1–42.

A second relevant principle is represented by the prevention principle, which allows action to be taken whenever there is any known risk situation with predictable harm. It is based on the logic of preventing damages instead of repairing them, protecting the environment at an early stage[10]. Although it may seem a repetition of the precautionary principle, their base is different. While the prevention principle is adopted for any situation with predictable damages, the precautionary approach is used in circumstances in which scientific proofs are not necessarily available. In this case, the Rio Convention does not explicitly define this principle, but a trace can be found in the 11th Principle, which maintains: "States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply". The "Stockholm Declaration on the Human Environment" in 1972 marked its acknowledgment at an international level. It has been a central tool for many EU legislation such as the Environmental Impact Assessment Directive and Waste Directive, and for all laws that generally prevent pollution. In particular, the principle was the base of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal in 1989 which aimed at reducing the production of harmful waste and illegal dumping.

Moreover, the responsibility principle refers to the liability of economic actors who damage the environment, meaning that those who commit the harm are the ones that must pay for it. Its legal foundation can be found in the 7th and 13th principles of the Rio Declaration which define the responsibility of developed countries. More precisely, the 7th principle states: "In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit to sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command", while the 13th claims that "States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction." This principle has been used in many cases where an economic actor has seriously damaged the environment, one of the most notorious being the BP Deepwater Horizon Case in 2010.

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[10] Oskam, A. J., Vijftigschild, R. A. N., Graveland, C., van Dam, Y. K., Frouws, J., & Proost, M. D. C. (1998). *Additional EU policy instruments for plant protection products: a report within the second phase of the programme: Possibilities for future EC environmental policy on plant protection products*. Wageningen Pers.

The explosion of the oil rig in the Gulf of Mexico led to five million barrels of oil to be spilled, causing devastating damages to the marine biodiversity and the death of eleven workers. The Clear Water Act imposed a civil penalty upon "any person who is the owner, operator, or person in charge of any vessel, onshore facility, or offshore facility from which oil ... is discharged in violation of paragraph (3) ..." [11], where the maximum amount of the penalty is mostly defined by the number of barrels of oil discharged in the sea.

An additional and well-known principle is represented by the polluter pays principle (PPP), which constitutes an environmental policy aimed at internalizing environmental externalities generated by economic activities, reflecting the full cost of production into the price of a certain good or service. A notion of this principle can be found in the 16th principle of the Rio Declaration, which states that "National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment." Nevertheless, the PPP has been a very important tool for environmental law since 1972, when the OECD introduced it for the first time[12], stating that policymakers could use this principle to incentivise economic actors to avoid environmental harm. The instruments to implement this principle are mainly two[13]: a) command and control law is applied by the government or similar institutions which define the legal amount of pollution. It mainly translates into emission limit values, bans, orders and sanctions. The maximum emission level for car manufactures is an example of command-and-control policy. b) market-based instruments are policies that use price and other economic variables to influence polluters' behaviour by giving incentives to reduce or terminate negative environmental externalities. These instruments are subsidies, taxes and emission trading schemes. One example could be the Kyoto protocol of 1987 that limited the release of greenhouse gas emissions.

The right to information is a further principle worth mentioning. It consists in the freedom to access information held by the public and private sector. Defined in the 10th principle of the Rio Declaration, it encourages citizen to actively in community life, by stating that "Environmental issues are best handled with participation of all concerned citizens, at the relevant level. At the national level, each

[11] United States v. BP Exploration & Prod., Inc. (In re Oil Spill by the Oil Rig "Deepwater Horizon"), US District Court, E.D. Louisiana., 4 September, 2014, 21 F. Supp. 3d 657 (United States).

[12] OECD. (1972, 26 May). *Recommendation of the Council on Guiding Principles concerning International Economic Aspects of Environmental Policies*. OECD/LEGAL/0102.

[13] ECA. (2021). *Principle of EU Environmental Law, The Polluter Pays Principle* (ECA Special Report pursuant to Article 287(4), second subparagraph, TFEU.). European Union.

individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided". Also, in occasion of the Aarhus Convention[14], the "UNECE Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters" was adopted. The Convention provided for the right for everyone to access to environmental information, the right to participate in environmental decision-making and the right to justice, meaning the possibility for everyone to challenge public decisions that don't respect environmental law. Since EU citizens have the right to access this kind of information, there are many agencies and portals that provide it. For example, the Federal Environmental Agency in Austria, the Commission of Access to Administrative Documents (CADA) in France, the PortalU in Germany, and many others.

Finally, the equity principle should be taken into account. It can be defined by two dimensions, i.e. intra-generational equity (referring to making sure that the same needs of all members of a community are considered) and inter-generational equity (representing the balance between the satisfaction of the current needs and the needs of the future generations). The latter is basically the definition of sustainable development, stating that the current generation is borrowing the natural resources from future generations. According to the third principle of the Rio Declaration states that: "The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations". An example is the policy measures on the preservation of the already scarce mineral resources[15] which are non-renewable and therefore, their extraction needs to be regulated. But the most obvious example is represented by the Sustainable Development Goals, which set out objectives that range from ensuring inclusive quality education to taking urgent climate action, covering both dimensions of equity.

[14] In June 1998, 40 countries and the European Community met in Aarhus for the Fourth Ministerial Conference in the "Environment for Europe" process.

[15] Henckens, T. (2021). *Governance of the World's Mineral Resources.* Elsevier.

1.2 Sustainable Development Goals: the 2030 Agenda

Table 1 UN SDGs

UN SUSTAINABLE DEVELOPMENT GOALS (SDGs)
1. No poverty: end poverty in all its forms everywhere
2. Zero hunger: end hunger, achieve food security and improved nutrition and promote sustainable agriculture
3. Good health and well-being: ensure healthy lives and promote well-being for all at all ages
4. Quality education: ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5. Gender equality: achieve gender equality and empower all women and girls
6. Clean water and sanitation: ensure availability and sustainable management of water and sanitation for all
7. Affordable and clean energy: ensure access to affordable, reliable, sustainable and modern energy for all
8. Decent work and economic growth: promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9. Industry, innovation and infrastructure: build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
10. Reduce inequalities: reduce inequality within and among countries
11. Sustainable cities and communities: make cities and human settlements inclusive, safe, resilient and sustainable
12. Responsible consumption and production: ensure sustainable consumption and production patterns
13. Climate action: take urgent action to combat climate change and its impacts
14. Life below water: conserve and sustainably use the oceans, seas and marine resources for sustainable development
15. Life on land: protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
16. Peace, justice and strong institutions: promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17. Partnerships for the goals: strengthen the means of implementation and revitalize the global partnership for sustainable development.

In 2016 the United Nations adopted the Sustainable Development Goals, seventeen objectives that set out a global roadmap to reach sustainable development by 2030. These resolutions, also known as 2030 Agenda, cover all the key areas embedded in the three pillars of sustainable development, aiming at reaching social equity, environmental protection and economic stability. The United Nations General Assembly created the seventeen goals, accompanied by 169 targets and over 300 indicators, building them on the Millennium Development Goals[16]. The Agenda had major influence in defining national development plans. According to the OECD and UNDP 2019 assessment[17], 70% of countries are orienting national policies towards SDGs. The goals also had an impact on the private sector, encouraging corporates to integrate sustainability into their business strategies. The importance of the SDGs is the creation of an international framework that provides universal language to address the roots of environmental disruption and social unrest.

However, the effectiveness of the Agenda has been criticized from different points of view. For example, many companies have introduced new policies and initiatives that only on the surface comply with the SDGs, being classified as greenwashing conducts. The main concern is that the private sector lacks any real motivation to integrate goals into the business activity[18]. Moreover, some criticize that not enough importance has been assigned to the social dimension of the goals, neglecting the most urgent needs[19].

Nevertheless, the implementation of the Sustainable Development Goals was the acme of a long process of integrating environmental concerns into the political agenda and the public eye, based on "the suggestion that environmental degradation and depletion of natural resources will reduce economic growth and development"[20]. Without the work of those who dedicated their lives and careers to the rise of environmental awareness this process wouldn't have been possible. However, there is still a long road ahead, mainly due to the difficulty to integrate the values of sustainable development into the concrete work of institutions and corporates, as in the case of competition.

[16] Eight goals established after the 2000 UN Millennium Summit to reach by 2015.

[17] OECD/UNDP (2019), M OECD/UNDP. (2019). *Making Development Co-operation More Effective: 2019 Progress Report*. OECD Publishing.

[18] Portney, K.E. (2015). *Sustainability (The MIT Press Essential Knowledge series).* The MIT Press, 110-117.

[19] Holden, E., Linnerud, K., & Banister, D. (June-July, 2017). The Imperatives of Sustainable Development. *Sustainable Development, 25*(3), 213–226.

[20] OECD. (2020). *Sustainability and Competition*. OECD Competition Committee.

1.3 The role of regulation

Since the institution of the EU, the environmental regulation has deeply evolved, either through internal developments or multilateral agreements. In the last two decades environmental policy has become a core issue of the EU sphere of action and it's possible to discern its different features. Firstly, the involvement in multilateral agreements through the adoption of international treaties like the Kyoto Protocol in 1997.[21] Secondly, the inclusion of environmental targets and goals in the Union policies and partnerships such as the Euro-Mediterranean partnership.[22] Thirdly, the regulatory reforms and production of legislative measures that aim at defining environmental standards, for example the Emission Trading Scheme. Looking more in depth at the early stages of environmental regulation and policy, they went hand in hand with the evolution of the European Union and therefore, is useful to look at EEC/EU treaties. In fact, the first environmental measures during the 1960s were taken without a specific legal basis and were based mostly on the former European Economic Community Treaty[23] which mentioned the possibility for European Union competence to ensure and promote "the constant improvement of the living and working conditions of their people" and the "raising of the standard of living" (Treaties, 1957). The lack of a proper structure made environmental interventions "incidental", "responsive" and "unarticulated"[24].

After the Stockholm Conference in 1972 it became clear that the European Union had to take a more active role in environmental protection. As a result, in 1973 the first Environmental Action Programme (EAP) was adopted, providing a rough framework of objectives and marking "the starting point of common EU environmental policy"[25]. From the third EAP in 1982 the environmental policy became wider, approaching emissions reduction with more strictness, not leaving to Member States the freedom to adopt the most efficient way to reach it.

The 1980s could be defined as the most productive period for environmental legislation with over 200 legislative measures by 1987[26], marked by the introduction of the Single European Act (SEA) in 1986 and ended with the Eastern enlargement. The SEA was the first explicit legal framework that

[21] Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC), Kyoto, 11 December, 1997.

[22] Euro-Mediterranean partnership-Trade-European Commission. (2021, June 9). EU Trade.

[23] Treaty Establishing the European Economic Community (EEC), Rome, March 25, 1957.

[24] Brinkhorst, L. J. (1993). The Road to Maastricht. *Ecology Law Quarterly*, 20(1), p. 7-23. https://www.jstor.org/stable/i24110814

[25] Orlando, E. (2013, April). The Evolution of EU Policy and Law in the Environmental Field: Achievements and Current Challenges.

[26] Jordan, A. (1998). *The Politics of a Multi-level Environmental Governance System: European Union Environmental Policy at 25*. CSERGE Working Paper, No. PA 98-01.

encouraged pro-active EU decision-making in the environmental field[27]. During these times, the European Commission also started to adopt innovative instruments such as eco-labelling public access to environmental information, environmental impact assessments and a proposal for a directive laying down civil liability for waste[28].

Table 2 Legislative acts of the European Union in the environmental field

PERIOD	LEGISLATIVE ACTS	ACTS PER MONTH
1970 - SEA	173	0.82
SEA - ENLARGEMENT	330	1.63
ENLARGEMENT - 2018	232	1.32

Source: Deters (2019).

The Maastricht Treaty in 1992 included for the first-time ever environmental protection in the EU objectives and mentioned the precautionary principle. However, the 1990s saw general resistance from Member States to devolve political power to centralised supranational policies[29], resulting in a decrease in legislative production and in the widespread use of the subsidiarity principle in the Maastricht Treaty. In the case of environmental protection, this principle assigns to Member States the main responsibility while the European Union may act if certain objectives are achieved better through the EU intervention. Consequently, the regional differentiation took over the environmental governance of the European Union, resulting into the EU environmental law setting minimum environmental requirements while Member States defined national environmental policies[30]. An example is the Integrated Pollution Prevention and Control (IPPC) Directive[31] which defined procedural requirements but left freedom to single states at a regulatory level.

In the early 2000s the EU approach for environmental policies, marked by the Treaty of Nice in 2003, changed due to several circumstances. In particular, the enlargement of the Union with the acquisition

[27] Lee, M. (2005). *EU Environmental Law. Challenges, Change and Decision-Making*. Hart. ISBN 1841134104

[28] Sands, P. (1991). European Community Environmental Law: The Evolution of a Regional Regime of International Environmental Protection. *The Yale Law Journal*, 100(8), 2511–2523.

[29] Pollack, M. A. (2000). The End of Creeping Competence? EU Policy-Making Since Maastricht. *Journal of Common Market Studies*, 38(3), 519–538.

[30] Orlando, E. (2013). The Evolution of EU Policy and Law in the Environmental Field: Achievements and Current Challenges.

[31] Directive 96/61/EC of *24 September 1996 Concerning integrated pollution prevention and control*. Council of the European Union.

of more Member States[32], and the pressure originated from the environmental agreements on Member States, which were often lacking competences and resources to fulfil them. As a consequence, the environmental policy over the 2002-2012 decade grew in autonomy and significance by focusing on climate change and by evolving in specific legislative measures that targeted emission reduction. Landmark of this growth was the EU climate and energy package[33] which consisted of a binding legislation that ensured the EU commitment to the "20-20-20" targets, aimed at reducing greenhouse gas emissions and increasing the production and use of renewable energies by 2020.

1.3.1 The modern EU environmental legislative framework

Over the last decade, the commitment of the European Union grew exponentially due to the magnitude and urgency of the climate crisis. The pledges taken during the Paris Agreement and COP26 to "limit global warming to well below 2, preferably to 1.5 degrees Celsius"[34], put environmental concerns at the top of every nation's priority. The modern European environmental framework is based on Articles 191-193 of the Treaty on the Functioning of the European Union. According to Article 191 comma 2: "Union policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Union. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay".

Environmental legislation takes different forms, more precisely they are a mixture of Regulations and Directives. Regulations are binding acts that are applied in all the Member States and constitute the backbone of every policy or strategy implemented. The main and most recent regulations in the environmental legislation field are the European Green Deal and the EU Taxonomy.

The European Green Deal, launched by the European Commission in 2019, is the roadmap for EU legislation and climate policies, and it can be seen as the peak of the fifty years of the European commitment in the environmental field. The Green Deal marks the abandon of the linear model and the adoption of circularity in the economic system. In particular, circular economy can be defined as "an economic system that replaces the "end-of-life" concept with reducing, reusing alternatively,

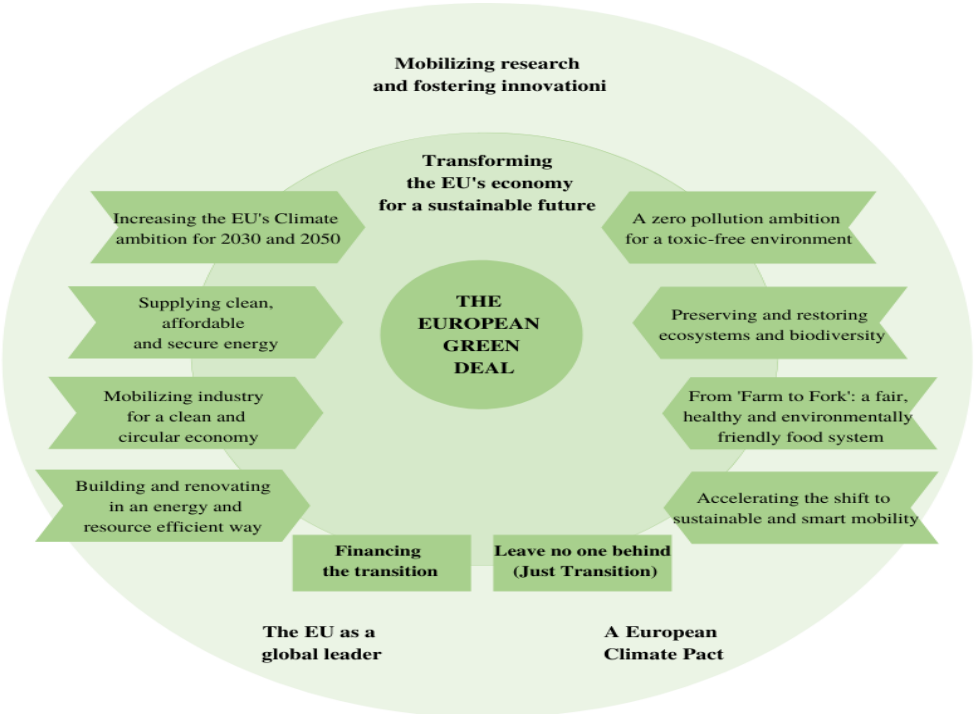
[32] Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia.

[33] *The EU climate and energy (CARE) Package*. (2020). European Environment Agency.

[34] Decision FCCC/CP/2015/10/Add.1 of 29 January 2016 *Adoption of the Paris Agreement.* Conference of the Parties.

recycling and recovering materials in production/distribution and consumption processes"[35]. The objective is to become 'climate-neutral' by reaching carbon neutrality by 2050, depending on clean energies, preserving and restoring biodiversity, and adopt policies and strategies that are sustainable and inclusive, leaving no one behind. Being the main driver of environmental policies, current framework and strategies are based on it.

Table 3 The elements of the Green Deal



Source: European Commission (2019).

More precisely, the already mentioned Environment Action Programmes (EAP), which have been issued since 1973. In fact, the proposal for the 8th EAP[36] is based on the objectives of the European Green Deal and aims at reaching carbon neutrality by 2050, enhancing adaptation to climate change, boosting the transition towards circular economy, preserving and restoring biodiversity, reducing air pollution, and enabling sustainable production and consumption systems. In terms of horizontal

[35] Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, 127, 221–232.

[36] COM (2020) 652 final 2020/0300 (COD): Proposal for a DECISION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on a General Union Environment Action Programme to 2030. European Commission. Brussels, 14.10.2020

strategies, in the framework of the Green Deal, in 2020 the European Commission delivered the Farm to Fork Strategy, aiming at building a fair, healthy and environmentally friendly food system. Also, the Biodiversity Strategy for 2030, a long-term plan to protect and restore ecosystems.

Always with the objectives imposed by the Green Deal, the Taxonomy Regulation has been released,[37] creating a common language to define if activities carried out by economic actors are sustainable and if the economic actors themselves can be defined as environmentally sustainable. The Taxonomy set six environmental objectives that economic activities have to meet in order to be defined sustainable: climate change mitigation, climate change adaptation, the sustainable use and protection of water and marine resources, the transition to a circular economy, pollution prevention and control, and the protection and restoration of biodiversity and ecosystems. Economic activities should 'substantially' contribute to at least one of the six objectives and do not significantly harm any of the other objectives.

The environmental directives instead, cover different areas and provide procedures to improve decision-making in the environmental field. They include:

- Environmental impact assessment (EIA) of proposed development projects: the Directive 2014/52/EU[38], introduced standard rules for performing an Environmental Impact Assessment (EIA) on private or public projects. The objective of this directive was to simplify the administrative procedures to approve projects that have significant effects on the environment, making public and private investments more sustainable and transparent.
- Strategic environmental assessment of proposed plans and programmes: the Strategic Environmental Assessment (SEA)[39] covers plans and programmes where environmental concerns are already included in the strategic plan. In both cases, EIA and SEA the involvement of the public is a central element, as stated by the Aarhus Convention which

[37] Regulation (EU) 2020/852 of 18 June 2020 on *The establishment of a framework to facilitate sustainable investment and amending Regulation (EU) 2019/2088*. European Parliament, Council of the European Union.

[38] Directive 2011/92/EU of 13 December 2011 on *The assessment of the effects of certain public and private projects on the environment* (consolidating and repealing Directive 85/337/EEC as amended by Council Directive 97/11/EC and by Directive 2003/35/EC) as amended by Directive 2014/52/EU. European Parliament, Council of the European Union.

[39] Directive 2001/42/EC of 27 June 2001 on *The assessment of the effects of certain plans and programmes on the environment.* European Parliament, Council of the European Union.

guarantees rights of access to public information[40], public participation in environmental decision-making and to turn towards justice if the two previous rights are not guaranteed[41].

- Environmental liability: The decision to cover this area come from the need to cover the gap left the lack of a common legal framework addressing the question of liability, responsibility and response action in the event of significant environmental damage stemming from the operation of economic and industrial activities (Orlando, 2013)[42]. The Directive[43] applies to direct or indirect damages to the marine environment, species and natural habitats and lands. The environmental liability implements the liability and polluter pay principles, providing instruments to control economic actors' behaviour.
- Environmental criminal law: the Directive 2008/99/EC[44] ensured the coordination of criminal law systems of Member States with the EU environmental legislation. The directive defines a list of offences that are harmful to the environment and requires Member States to adopt effective and proportional penalties, which can be criminal or administrative based on the national legal system.

In the last decade the European Union has deeply strengthened environmental protection through regulation, directives and other measures. Although its effort has changed the political and economic landscape of the Union, there are still gaps to be filled due to the broadness of legislative instruments.

[40] Directive 2003/4/EC of 28 January 2003 on *Public access to environmental information and repealing Council Directive 90/313/EEC.* European Parliament, Council of the European Union.

[41] Directive 2003/35/EC of 26 May 2003 *Providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending, with regard to public participation and access to justice*, Council Directives 97/11/EC and 96/61/EC amended by Directive 2011/92/EU. European Parliament, Council of the European Union.

[42] Orlando, E. (2013, April). The Evolution of EU Policy and Law in the Environmental Field: Achievements and Current Challenges.

[43] Directive 2004/35/CE of 21 April 2004 on *Environmental liability with regard to the prevention and remedying of environmental damage*, as amended by Directive 2006/21/EC, Directive 2009/31/EC and 2013/30/EU. European Parliament, Council of the European Union.

[44]Directive 2008/99/EC of 19 November 2008 on *The protection of the environment through criminal law.* European Parliament, Council of the European Union.

1.3.2 Challenges of regulation's effectiveness

As crucial as it may be, environmental regulation faces many challenges that might undermine its effectiveness. The main problems derive from the lack of coordination and compliance which are highly needed in the implementation of regulative measures. One challenge might be the compliance with the regulation from companies and other economic actors[45]. Many findings, attest that the legislative impact will bring structural changes to a business activity, producing consequences on the entire industry in the long-term[46]. Consequently, the decision to comply or not with environmental regulations might depend on the costs and benefits that derive from it, mainly the penalties associated with the noncompliance. In this case, national legislation could be too 'gentle' in defining the penalty, and if companies don't have strong economic incentives, they could not comply or do the bare minimum to reach the minimum environmental criteria.

Another possible problematic consequence of regulation itself is regulatory capture. This phenomenon occurs when the regulatory authority is interested in doing the interest of the sector it needs to regulate, which mainly happens when economic actors in a certain sector have the power to control or influence the authority. This can happen in environmental regulation because fossil fuel industries have a high impact on the economic growth of a region or a country and so, even if their operations may damage the environment, the benefits coming from it make the regulation authority hesitate in imposing effective regulations. One example is the case of the German car industry which has managed to influence EU's environmental regulations. In particular, Alter-EU's report on transparency, revealed that "whenever German car producers have faced tougher measures from the EU, the German government has done everything it could to protect them by delaying or watering down the new rules."[47]

Yet, Transnational Corporations (TNCs) might be challenging to regulate since their operations are spread through different national jurisdictions[48]. The main concern is that TNCs can have an ambiguous behaviour, operating with higher environmental standards in countries where their head offices are, while overlooking environmental concerns in other countries, mainly less developed ones

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[45] McManus, P. (2009). Environmental Regulation. *International Encyclopedia of Human Geography*, Elsevier, 546–552.

[46] Gurtoo, A. and Antony, S.J. (2007). Environmental regulations: Indirect and unintended consequences on economy and business. *Management of Environmental Quality*, 18(6), 626-642.

[47] Katzemich, N. (2018, September). *Dieselgate and the German Car Industry, Corporate Capture in Europe: When big business dominates policymaking and threatens our rights.* Brussels: Alliance for Lobbying Transparency and Ethics Regulation in the EU. 91-92.

[48] McManus, P. (2009). Environmental Regulation. *International Encyclopedia of Human Geography*, Elsevier, 546–552.

that do not have an adequate environmental legislation. An example is what occurred in Nigeria with the Royal Dutch Shell Group[49], where the oil exploitation turned into environmental disaster and human catastrophe.

Finally, regulation can be slow and inadequate, as in the case of the carbon trading schemes[50]. In fact, the current emission trading scheme of the European Union only contrasts 41% of EU's total emissions[51], a percentage that won't help to reach carbon neutrality.

For these reasons, it's obvious that regulation it's crucial but it's not sufficient on its own. A complementary role can be given to competition. While environmental regulation defines the standards and criteria for business models, competition can play an important role in filling the gaps left by the broadness, slowness and rigidity of regulation. The role of competition was recognized by the European Commission itself, which declared that "the impact of regulations pushing for more sustainable objectives in the markets analysed will be reflected in the competitive assessment."[52]

[49] Guardian Staff Reporter, (2021, August 12). *Shell to pay $111m over decades-old oil spills in Nigeria.* The Guardian.

[50] Dolmans, M. (2020). Sustainable Competition Policy. Competition Law & Policy Debate, 5(6)/4(1), 4-23.

[51] Liboreiro, J. (2021, August 26). *Why is the EU's new Emissions Trading System so controversial?* Euronews.

[52] Badea, A. et al. (2021). Competition Policy in Support of Europe's Green Ambition. *European Commission Competition Policy Brief.*

1.4 The role of competition law

The role of competition in achieving sustainability goals is crucial to embed the private sector in the environmental protection debate. Private action is already formally included as part of the journey towards sustainable development, being mentioned by the 12th SDG which requires sustainable production and consumption cycles.

According to Portney[53], the private sector can contribute to foster sustainability in three different ways. Firstly, companies can be actively part of the green economy[54] by considering sustainable economic growth as their main goal, putting it at the centre of the decision-making process. Secondly, even if working outside the green economy, companies can set environmental standards and targets for their business operations. Thirdly, businesses can create new organizations through partnerships with NGOs to foster environmental protection and advocacy. These efforts go hand in hand with the Triple bottom line theory[55], which claims that economic actors should define their business models by taking into account profit, planet and people - respectively economic, environmental and social concerns, the three pillars of sustainable development. However, the involvement of the private sector raises concerns about the truthfulness of its intentions since these efforts might be linked to greenwashing activities. For this reason, competition might take an active role to ensure that companies are practicing sustainability in the way they claim it and that are not hiding ulterior motives behind it.

The inclusion of the theme of sustainability into competition law has generated a strong debate. In the conferences "Competition Law and Sustainability Conference 2019"[56] and "Sustainability and Competition Policy: Bridging two Worlds to Enable a Fairer Economy"[57] the discussion revolved around the competition law's gap in environmental protection, showing that there is still scepticism over the ability of competition to foster sustainability. Some claim that that the value judgments involved in the normative questions should not be made by competition authorities[58]. The scepticism

[53] Portney, K.E. (2015). *Sustainability (The MIT Press Essential Knowledge series).* The MIT Press, 110-117.

[54] *Green Economy*. (2022). UNEP – UN Environment Programme.

[55] Hammer, J., & Pivo, G. (2016). The Triple Bottom Line and Sustainable Economic Development Theory and Practice. *Economic Development Quarterly*, 31(1), 25-36.

[56] Guilleux, C. (2019, May 10). *Competition Law and Sustainability – Addressing the Broken Links.* Calenda.

[57] *Sustainability and competition policy: Bridging two worlds to enable a fairer economy*. (2019, August 21). Newsroom - European Commission.

[58] Peeperkorn, L. (November, 2020). Competition and sustainability: What can competition policy do. *Concurrences*, 4, 26-65.

concerns the scope of competition law, wondering if it should diverge from consumer welfare[59]. Another important matter of debate is the legal framework, since each jurisdiction might have a different approach depending on the legal constraints posed upon competition law.

Along with national jurisdictions, supranational and international law have a strong impact in framing this issue. In the case of the European Union, Article 37 of the EU Charter of Fundamental Rights claims that: "A high level of environmental protection and the improvement of the quality of the environment must be integrated into the policies of the Union and ensured in accordance with the principle of sustainable development". Also, Article 11 of the Treaty on the functioning of the European Union imposes that "Environmental protection requirements must be integrated into the definition and implementation of the Union's policies and activities, in particular with a view to promoting sustainable development". These requirements extend to competition law, conceived as part of EU's policies[60].However, the European Union does not have the authority to define competition law measures that include sustainability concerns, since its role mainly consists in supervising the compliance with competition provisions. In particular, interpreting competition provisions while considering sustainability can lead to two different results. On one hand, there is the interpretation that sees competition law as a *sword* to prevent measures that are harmful for the environment. On the other hand, competition provisions can support measures that include sustainability, which acts "as a *shield* to measures that support sustainability against attacks by competition law"[61]. The distinction between these two interpretations will be examined later on.

Beside the legal framework in which these interrogatives are applied, including environmental protection into competition policies does not necessarily lead to a change of competition law objectives. This issue is also linked to the scepticism around the legitimacy of competition authorities to make value judgments involved in the normative questions. It is important to remind that constitutional and supranational frameworks demand competitions authorities to make these judgments in certain cases, as showed by Article 11 TFEU. This does not mean that competition law is a substitute to legislation, but that competition authorities comply with legislations' requirements on environmental protection, becoming a helpful tool to reach sustainability goals[62].

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[59] Claasen, R. & Gerbrandy, A. (2016). Rethinking European Competition Law: From a Consumer Welfare to a Capability Approach. *Utrecht Law Review*, (2)1, 1-15.

[60] Nowag, J. (November 1, 2019). Competition Law's Sustainability Gap? Tools for an Examination and a Brief Overview. *Lund University Legal Research Paper Series.*

[61] Ibidem.

[62] Ibidem.

II PART - THE APPLICATION OF COMPETITION LAW TO ENVIRONMENTAL PROTECTION THROUGH ECONOMIC THEORY

2.1 The economic outcome of competition and sustainability

The importance of applying competition law to environmental protection policies and investments might find better explanation through the use of economics to analyse the dynamics between competition and sustainability. Many economists find regulation more effective to reach sustainability goals since it has a more direct and uniform impact on economic actors, while coordination may distort market outcomes and consumers' surplus[63]. However, as mentioned in the previous part, regulation faces many challenges that might affect its efficiency, especially when it comes to command-and-control measures. For this reason, in certain cases the interaction among economic actors that results in sustainability initiatives may be encouraged. The observation of market forces from an economic point of view can help understanding when this interaction can be more suited for reaching sustainability goals than traditional regulation and vice versa.

An example of the involvement of economic theories in a competitive assessment is the Chicken of Tomorrow case, which will be analysed more in depth further on. The key element of this case is the comparison by The Dutch competition authority of the effects on consumers of a price increase against an increase in animal welfare through cost-benefit and willingness to pay analyses[64]. The foundation of the involvement of economic theory can be found in the study on sustainable management of common pool resources by Elinor Ostrom, for which she has earned the Nobel prize in economics in 1993. In her study, Ostrom claims that the dichotomy between the state and the market, and therefore between public and private action, is incorrect since the contamination between these two dynamics is undeniable [65]. As a consequence, the solution to reach a certain goal or fix a market failure can be a mix of the two.

Most economists suggest that cases in which private initiative can lead to better outcomes than government action are limited due to lack of incentives to invest in sustainability. However, this belief

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[63] Schinkel, M. & Spiegel, Y. (2017). Can collusion promote sustainable consumption and production? *International Journal of Industrial Organization*, 53, 371-398.

[64] ACM. (2015). *ACM's analysis of the sustainability arrangements concerning the 'Chicken of Tomorrow'*. Authority for Consumers & Markets.

[65] North, D. & Alt, J.(eds.). (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press.

might lack of practical evidence which could contradict it. In fact, economics models are based on rational axioms that clash with the case-by-case approach needed for assessing environmental effects. The economics models are based on a profit maximiser axiom that implies that consumer welfare is only increased by consumption while firms' objective is only to maximize profits. However, consumers might desire a different optimal outcome that is reached through other factors, while companies may face internal trade-offs and choose to sacrifice part of the profits to pursue a social interest[66].

Nevertheless, the use of economic models is a useful tool to understand the differences in applying regulation or competition, and the dynamics between competition and cooperation in the sustainability field, as it can be seen in the case of the competition-innovation debate.

2.1.1 Market failures of sustainability initiatives

The analysis of environmental effects through economic theories highlights that the market does not always lead to the most sustainable outcome due to the presence of market failures both in the supply and demand sides.

On the supply-side, there is the presence of challenges that lead to non-optimal outcomes, making sustainability initiatives inconvenient for firms to invest in. These challenges mainly manifest through negative externalities and coordination problems. Negative externalities are represented by the presence of costs that are not included in the price of a good or a service, resulting in a cost for the whole society. The most common example is the social cost of environmental pollution as a consequence of production. In fact, the decision of a producer to not consider the full cost of production in the price of a polluting good causes a loss of social welfare. The full cost includes external costs caused by pollution, such as decreased life quality and higher health care costs[67]. Consequently, the true price is the sum of the market price and of the external costs deriving from production's contribution to climate change. Since external costs are not included in the true price, society will have to pay for them. When firms only consider private costs in the price decision, the social cost will increase with the level of production, and consequently also with the level of pollution, leading to a non-optimal market outcome.

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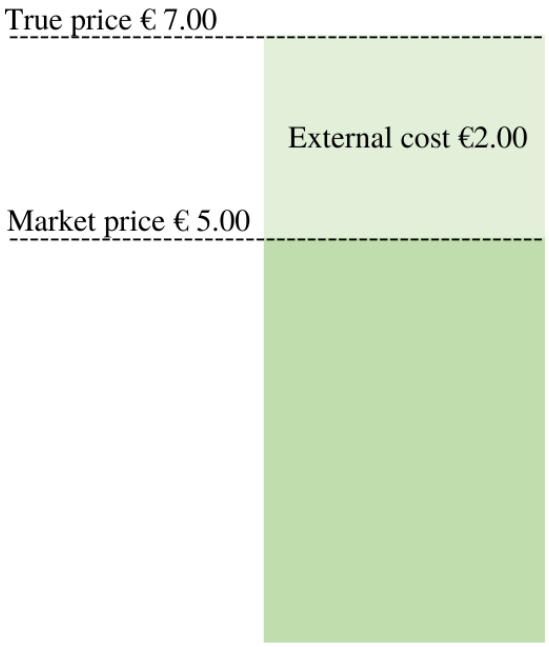
[66] Reinhardt, F., Stavins, R., & Vietor, R. (2008). Corporate Social Responsibility Through an Economic Lens. *Review of Environmental Economics and Policy*, 2(2), 219-239.

[67] Helbling, T. (2022, February 24). *Externalities: Prices Do Not Capture All Costs*. International Monetary Fund.

Figure 3 Price externalities



Source: True Price. (2019, June). *A roadmap for true pricing*. 2019 True Price Foundation.

Since the minimization of social costs would result in a decrease in production levels, firms need to be incentivized to internalize external costs. In fact, firms refrain from investing in sustainability for the higher costs associated, especially if they are first movers in their market. The lack of incentives leads to coordination problems with the phenomenon of first-mover disadvantage: if firms believe that investing in sustainability will not result in a desirable outcome, they will not produce greener goods. In particular, the first company to implement sustainable objectives will risk being undercut by rivals since consumers might still opt for the less environmental but cheaper options.

On the demand side, market failures arise from consumers' lack of expression of their true willingness to pay. This is related to the asymmetry of information between producers and consumers in certain markets, where consumers have difficulties to have full information about the production process of goods and therefore, struggle to detect the level of sustainability and to compare it with other products. Examples are input products, which are far from the end of the supply chain and from consumers' knowledge. To become less polluting, materials that still do not have a greener alternative like cement and ethylene, require a change in the production process that recaptures emissions[68]. However, this process does not influence final consumers preference, which mostly value the performance and the price dimensions of these products. Beside asymmetry of information, there are also some

[68] Gates, B. (2021). *How to Avoid a Climate Disaster: The Solutions We Have and the Breakthroughs We Need*. Penguin Random House.

behavioural biases that may prevent consumers to express their true willingness to pay. Behavioural biases create a mismatch between the good that the consumers really desires and their purchase. There are different kinds of behavioural biases that can cause this phenomenon[69]. Based on Simon studies on heuristics[70], the rule of thumb bias claims that even if individuals have access to all the information about the production process and features of a good, they may still refuse to acknowledge it and opt for a good that does not maximize their desire for sustainability qualities, but it is "good enough", reaching a *satisficing*[71] instead of an optimal outcome. Another bias which is very common in the sustainability field is the coordination failure: individuals that are well-informed and are willing to pay for a good with higher price but with sustainability qualities may still opt for another less sustainable option, moved by a feeling of despair for which their choice would only still be a drop in the ocean, useless. Also, the hyperbolic discounting bias leads consumers to ignore or underestimate the consequences of polluting productions, perceiving climate change as a far and abstract issue. Competition authorities need to consider market failures on both sides in order to encourage firms to opt for less polluting options and to fully understand consumers' decision-making in the purchase process. Otherwise, competitive assessments would be distorted and even damaging for the market. The topic of market failures of sustainability initiatives can be better analysed by using economic paradigms like the concept of pareto-efficiency and consumers' surplus.

[69] Dolmans, M. (2020). Sustainable Competition Policy. *Competition Law & Policy Debate*, 5(6)/4(1), 4-23.

[70] Simon, H. A. (1979). Rational Decision Making in Business Organizations. *The American Economic Review*, *69*(4), 493–513.

[71] Neologism created by economist Herbert A. Simon by the combination of the words "satisfy" and "suffice".

2.1.2 Environmental quality

As already discussed in the previous part, the term sustainability has a broad and general meaning. For this reason, it is important to clarify that when studying sustainability initiatives through economic frameworks, the subject of the analysis is environmental sustainability, also defined as environmental quality. In order to study sustainability from a competitive point of view, it is helpful to frame it in an economic model through the social welfare function. For this purpose, the "Technical Report on Sustainability and Competition" provided by the Greek and Dutch competition authorities provides a clear explanation of such economic framework. The most important element to determine is the optimal level of environmental quality, which corresponds to the optimum level of pollution allowed in a particular market. The social welfare function is linked to individuals' utility functions, as in preferences for environmental quality.

Considering conventional goods traded in the market and environmental goods and services that constitute the elements of environmental quality and that are affected by externalities, an individual *i*'s utility function in a society of *k* individuals, is equal to: $Ui\ (Qi, E)$[72]. When both quantities of the conventional and the environmental goods increase, the utility for the individual increases. However, there is a trade-off between these two elements that results in a loss of consumer's welfare, as we are going to see later.

There are different theories around the representation of society's utility function. According to the utilitarian school of thought, the social welfare function is equal to the sum of the individuals' functions, while the Rawlsian theory represents it as the utility of society's least wealthy member. The most common approach is the potential Pareto optimality criterion, also known as the Kaldor-Hicks criterion, which claims that given two bundles (Q_0, E_0) and (Q_1, E_1), if at least one individual prefers the second bundle to the first, meaning that $Ui_1(Q_1, E_1) > Ui_0(Q_0, E_0)$ and the other members of society do not object, then the social welfare of said bundle is greater than the social welfare of the other $SW_1 > SW_0$[73].

A descending principle of social welfare is production and exchange efficiency. Given a society composed of two individuals, each one of them obtains value from two conventional goods Q_1 and Q_2 produced by the combination of two inputs that are traded in a competitive market as well. The technological efficiency is reached where the maximum amount of the two commodities can be

[72] *Qi* is the vector of quantities of the commodities the *i*th individual consumes while *E* is the vector of environmental goods available.

[73] Hellenic Competition Commission (HCC) & Netherlands Authority for Consumers and Markets (ACM). (2021, January). *Technical Report on Sustainability and Competition*.

produced given society's resources and technology's function[74]. The pareto efficient allocations in this market are reached when both the two individuals' preferences cannot be improved without worsening each other, meaning that every other allocation can be improved. According to the social welfare economics, the achievement of pareto efficiency can be obtained by competitive market transactions, where the goods and inputs' prices lead to an efficient allocation. When environmental goods are considered in this analysis, the pareto efficiency cannot be achieved by competitive market alone. The main reason behind this, is the fact that environmental goods are not traded in regular markets, meaning that are not privately exchanged and the property rights are not well defined. As a consequence, the production of certain goods can cause negative externalities, creating costs external to society, such as polluting emissions. If the cost of these emissions is not assigned, efficiency cannot be reached.

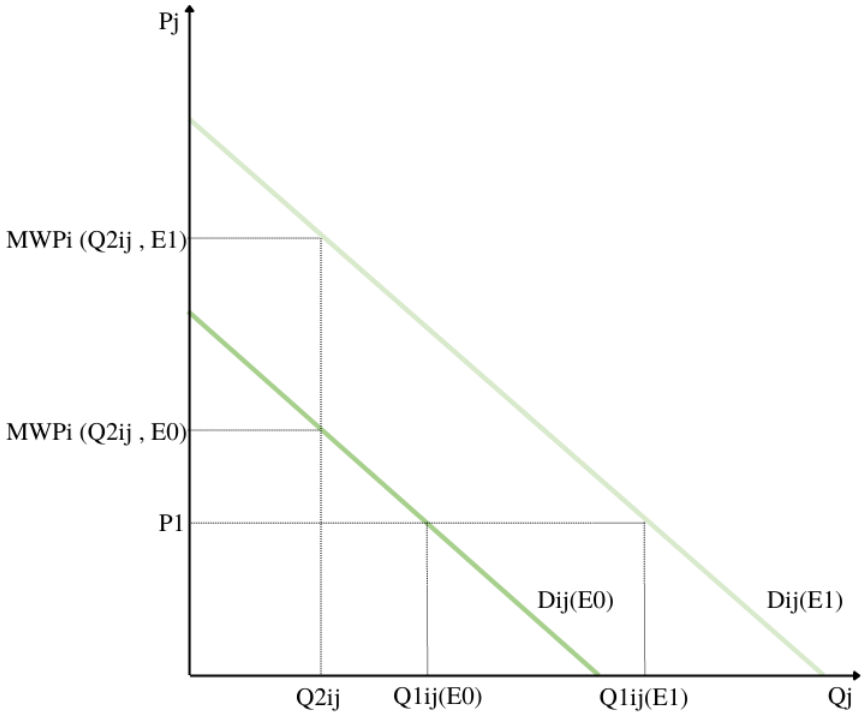
The challenges imposed by environmental quality require a shift from a general equilibrium framework to a partial one[75]. In this framework individuals still seek to maximize their utility while considering their budget constraints, given by commodity prices and their income. The marginal willingness to pay, which is the maximum amount that the individual is willing to pay for an extra unit of the good is equal to the marginal benefit that they are receiving from the additional unit. Since the marginal benefit decreases with additional units of the good, the individual's demand represents this inverse relationship. Also, environmental quality reduces with an increase in quantity, expressing the trade-off between production and consumption and environmental quality. This trade-off requires intervention by regulatory and competition authorities, since it causes negative externalities that distort the market and reduce social welfare.

In the illustrative example provided by the Greek and Dutch competition authorities, the demand of the individual for the good j at two different levels of pollution E^0 and E^1 – caused by different production technologies – is showed. The individual's willingness to pay MWP_i for quantity Q^2_{ij} at the higher level of environmental quality E_1 is higher, and for any price p_1 they are willing to reduce the quantity purchased from $Q^1_{ij}(E^1)$ to $Q^1_{ij}(E^0)$ when the environmental quality decreases to E^0.

[74] All the possible inputs 'combinations that produce the same level of output, also said isoquants.

[75] A partial equilibrium only considers one market, considering the allocations in other markets as given.

Figure 4 Individual demand for the good j at different levels of pollution



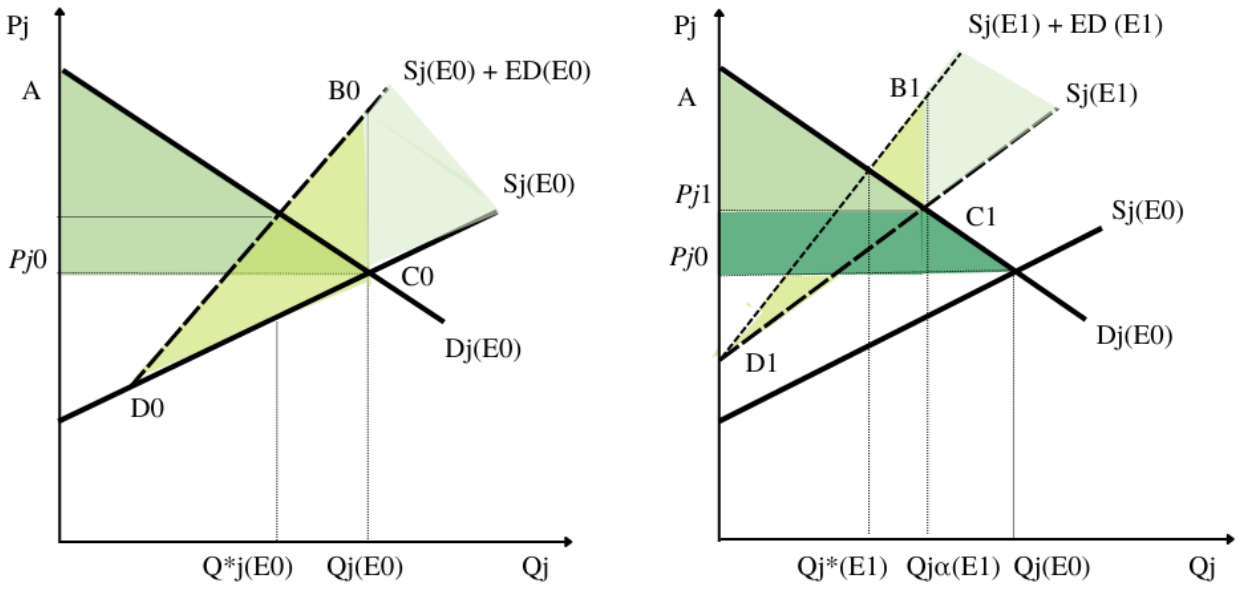
Source: Hellenic Competition Commission (HCC) & Netherlands Authority for Consumers and Markets (ACM). (2021, January). *Technical Report on Sustainability and Competition*.

The reduction in social welfare is clear when studying the society's demand, which is the result of aggregating all individuals' demands and considering the aggregate production level. The consumers' surplus is equal to the aggregate society's willingness to pay for an additional unit of the good minus the cost of the purchase. On the other hand, producers' surplus corresponds to their profit. In the absence of externalities, the demand and supply curves meet at one point where efficiency is reached. When instead, environmental externalities are considered, increasing environmental quality leads to a new cost in the equation that causes a price increase.

In the graphic provided by the report, the presence of higher environmental quality causes an increase in the marginal cost of production. In the first case, the production of the good j generates pollution that causes damages for all market participants, not only the consumers of the good. The optimal output level $Q_j(E^0)$ is given by the intersection of the market demand $D_j(E^0)$ and the supply curve $S_j(E^0)$. In this example it is assumed that the total environmental damage for society has been measured through the methods that will be analysed further on, and it has been added to the private production costs. The addition of these costs generate a shift in the supply curve to $S_j(E^0) + ED(E^0)$ and an associated social optimum with a reduction in the quantity produced to $Q^*_j(E^0)$. The second case, represented by the graph on the right, represents the agreement between producers of adopting

a more costly but less polluting technology that improves the environmental quality to E^1. The increase in private production costs generate a shift of the supply curve to $S_j(E^1)$, at the same time the reduction of environmental damages lead to the social supply curve $S_j(E^1)$ + ED (E^1). Since the production process will be implemented along the supply curve $S_j(E^1)$, the equilibrium will be $Q_{j\alpha}(E^1)$ while the new social optimum resulting from the new technology adopted will be $Q_j^*(E^1)$.

Figure 5 Higher environmental quality

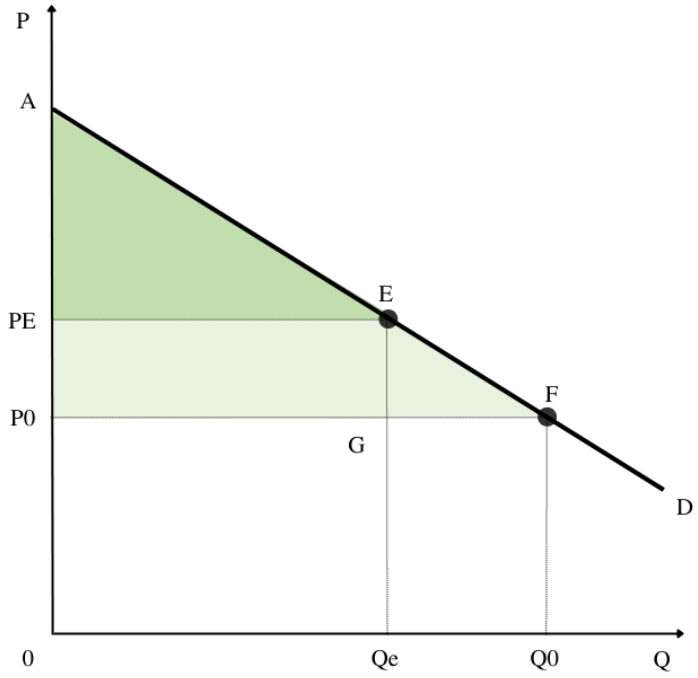


Source: Ibidem.

The transition to a less polluting production technology brings environmental benefits, meaning the reduction of environmental damages which are expressed by the differences in the areas $D_0C_0B_0$ and $D_1C_1B_1$. At the same time, the improvement in environmental quality E_1 reduces the surplus of individuals that participate in the market, as showed by the area $P_{j0}C_0C_1P_{j1}$. This impact on welfare can be divided into social benefit gain derived by the reduced environmental damages, and into the potential loss that affects consumers in the market.

Looking more in depth at the loss of consumer's welfare, an increase in price from P_0 to P_e results in a reduction in the quantity purchased from Q_0 to Q_e and in a reduction of their surplus. Before the price increase, the individual' surplus was defined by the area $0AFQ_0$ which is equal to the difference between the amount the consumer pays and the maximum amount they are willing to pay. After the price increase the surplus will be reduced by the area P_0P_eEF.

Figure 6 Loss of consumer's welfare



Source: Ibidem.

These illustrations highlight the fundamental questions that derive from considering environmental quality in the production process. First, if competition authorities should consider environmental effects in the assessment of a certain market. Second, which individuals should be included in the consideration of consumers' welfare. Third, which timeframe should be adopted, given the particular long-term feature of environmental effects. Fourth, if environmental effects should be balanced with other effects in the market. Finally, the most important question relates to the possibility of expressing environmental effects in monetary terms. All these questions will be addressed in the next sections.

2.2 Challenges in applying traditional competitive frameworks

2.2.1 Including environmental effects

The decision on the effects that need to be considered by competition authorities can be challenging since there is a common belief that the traditional competitive assessment framework should only consider short-term price effects[76]. This derives from the Neoclassical economic school of thought, also known as "School of Chicago", which is based on the belief that the welfare of trading parties is maximized when the optimal equilibrium prices are reached through economic forces that will lead prices to the equilibrium in any competitive environment[77]. This *laissez faire* philosophy translates into supporting the "purity" of competition authorities, which should not undermine the market's ability to self-regulate[78]. However, it is argued that considering only prices as the driving force of welfare is an oversimplification of the economic reality[79].

In the case of environmental effects, their inclusion is motivated by the existence of environmental externalities that need to be taken into account, otherwise prices wouldn't fully represent the cost of the production and distribution process[80]. At the root of this debate is definition of "consumer welfare", core objective of the competition policy framework. The meaning of welfare is "the health, happiness and futures of a person or group"[81], a concept that is clearly broader than economic prosperity. In fact, the presence of clean air and water, resource abundance and healthy ecosystems which are guaranteed by environmental protection, are essential for the well-being of society. The same concept can be found in the third Sustainable Development Goal which ensures healthy lives and promotes well-being for all.

Also, the belief that competition authorities should act only in the name of strict economic welfare has no legal basis. In fact, in the EU law there is no mention of adopting a narrow consumer welfare test. The concept of well-being is included in the EU goals defined by Article 3 of the Treaty on the European Union, which states: "The Union's aim is to promote peace, its values and the well-being

[76] Holmes, S. (2020). Climate change, sustainability, and competition law. *Journal of Antitrust Enforcement*, (8)2, 354-405.

[77] Howard, N. (2012). What is the Problem with Neoclassical Price Theory? *World Review of Political Economy*, 3(4), 457-477.

[78] Ezerachi A. & Stucke, M. (2018). The Fight Over Antitrust's Soul. *Journal of European Competition Law & Practice*, 9(1), 1–2.

[79] Agboola, A.O. (2015). Neoclassical economics and new institutional economics: An assessment of their methodological implication for property market analysis. *Property Management*, 33(5), 412-429.

[80] Dolmans, M. (2021). Sustainable Competition Policy and the "Polluter Pays" Principle. *Competition Law, Climate Change & Environmental Sustainability*, Concurrences, Paris.

[81] William Collins Sons & Co. (2012). Welfare. In Collins (Complete & Unabridged 2012 Digital Edition). HarperCollins.

of its people […] It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment. […] It shall contribute to peace, security, the sustainable development of the Earth…"

Some environmental effects have no problem in being categorized as economic, like improvements in the environmental performance or the quality of a product (biodegradability, etc.). When instead the effects may appear of non-immediate economic nature, the competition authority approach might be more conscious. There are in fact features that can subjectively influence consumers' choices, and therefore they are more difficult to quantify. These effects are recognized as sustainability benefits since they are related with the production or distribution process and provide a reason for consumers' willingness to pay a higher price: less use of chemicals, no animal testing, etc. However, nowadays there are several methods of quantification for this kind of characteristics, as it will be showed further on.

2.2.2 Defying the relevant market

Going back to consumer welfare, the main objective of competition law framework, the definition of consumers opens the debate over identifying the relevant market for competition authorities. The benefits or damages deriving from environmental effects may in fact apply also to individuals considered outside the traditional relevant market. The concept of relevant market is related both to product and geographic characteristics. Based on the first factor "a relevant product market comprises all those products and/or services which are regarded as interchangeable or substitutable (substitutability) by reason of product characteristics, prices and intended use"[82], while "the relevant geographic market comprises the area in which the undertakings concerned are involved in the supply and demand of products or services, in which the conditions of competition are sufficiently homogeneous and which can be distinguished from neighbouring areas, because the conditions of competition are appreciably different in those areas."[83] On one hand, some believe that including consumers outside the market clashes with the nature of competition law, burdening competition authorities with issues beyond their mandate[84]. On the other hand, it has been recognized that

[82] European Commission. (1997). COMMISSION NOTICE on the definition of relevant market for the purposes of Community competition law. Official Journal of the European Communities, 372, 5.

[83] Ibidem.

[84]Peeperkorn, L. (November, 2020). Competition and sustainability: What can competition policy do. *Concurrences*, 4, 26-65. Veljanovski, C. (2021). Collusion as Environmental Protection - An Economic Assessment. *Journal of Competition Law & Economics*.

environmental effects are a stand-alone issue that have to do with the entire society and cannot be treated as traditional competition matters[85]. It has been noted that the same issue has risen in other areas of competition law, the digital market for example is characterized by a series of externalities that have an impact also outside the relevant market, but competition authorities have operated in this area, nevertheless. In the 2010 Horizontal Guidelines, the Commission affirms that the "concept of consumers encompasses the customers, potential and/or actual, of the parties to the agreement."[86] This broad vision of consumers has been applied in the CECED case which will be analysed later, in which the Commission considered the environmental benefits on society. In other words, the definition of consumer should be interpretated as citizen[87]. Also, Article 101(3) of the TFEU sets four conditions necessary for an agreement to be exempted, and the second condition claims that an agreement allows "consumers a fair share of the resulting benefits". The focus of the article is the fair share of resulting benefits, which can apply also to consumers belonging to different markets. The fair share is traditionally calculated through the assessment of the monetary costs and benefits for consumers belonging to the relevant market, meaning actual and potential customers of the actors of the agreement[88]. However, this does not exclude the idea of society being consumers. As already mentioned, Article 101(3) allows consumers in general and not the specific costumers of the parties, to receive a fair share of resulting benefits.

The concept of fairness can be interpreted based on the case in which it applies[89]: in the case of air pollution, a consumer receives a fair share coming from the benefit of the reduction of emissions when the entire group to which it belongs benefits from it, meaning that the impact is strong enough to affect a large area or group. Also, when considering costs instead of benefits as environmental effects, the concept of fairness gains even more importance. Phenomena such as air pollution and emissions are negative externalities since they have a cost on society while the economic benefit is mostly obtained by few economic actors. This "unfairness" is a market failure that needs to be reduced by the intervention of competition law. In this light, the broad definition of consumers seems even more reasonable.

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[85] Holmes, S. (2020). Climate change, sustainability, and competition law. *Journal of Antitrust Enforcement*, 8(2), 354-405.

[86] European Commission. (2011). Communication from the Commission: Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements. Official Journal of the European Communities, 11,1.

[87] Nowag, J. (November 1, 2019). Competition Law's Sustainability Gap? Tools for an Examination and a Brief Overview. *Lund University Legal Research Paper Series.*

[88] See *Guidelines on the application of Article 81(3) of the Treaty*, C 101/97, 27.4.2004, para. 80 ("*the net effect of the agreement must at least be neutral from the point of view of those consumers directly or likely affected by the agreement*").

[89] Dolmans, M. (2020). Sustainable Competition Policy. *Competition Law & Policy Debate*, 5(6)/4(1), 4-23.

Another key element is the consideration of future generations which are the deep core of sustainable development. According to the Commission's 2004 Exemption Guidelines, is possible to include future consumers in the competitive assessment, claiming that: "In some cases a certain period of time may be required before the efficiencies materialise. Until such time the agreement may have only negative effects. The fact that pass-on to the consumer occurs with a certain time lag does not in itself exclude the application of Article 81(3)."[90]

In conclusion, it is legally and practically possible for competition authorities to use a broad definition of consumers when it comes to environmental effects, expanding the interpretation of consumer welfare. However, in order to do that, it is necessary to address some related issues, such as the adoption of the right timeframe and the balancing of environmental externalities with other effects.

2.2.3 Adopting the right timeframe

The timeframe is a critical element for the outcome of competition assessments. As the definition of consumer welfare needs to be wider to include environmental effects, the same can be said for the time dimension. Environmental good and services have a peculiar time scale for which effects can be showed far into the future. For example, the impact of economic activities that cause deforestation and loss of biodiversity could be noted after years.

The benefits or costs for society are hardly measurable in the short-term which is more able to capture direct price effects. By considering for example an agreement between car producers to lower emissions, competition authorities might measure price increases and the shortening of options for consumers; in the long-term however, they should consider also what is the impact of introducing less-polluting vehicles in the market on the journey towards the green transition.

A similar issue characterizes the assessment of innovation effects. In the case of innovation, competition authorities have to adopt a long-term approach in order to take into consideration the fact that consumers are willing to pay a premium price for the possibility in the future to benefit from innovative systems of production or new products. Moreover, the distinction between environmental benefits and innovation ones is often hard to assess.

[90] European Commission. (2004). Communication from the Commission — Notice — Guidelines on the application of Article 81(3) of the Treaty. Official Journal of the European Communities, 101, 97.

As a consequence, the definition of a limited timeframe for allowing a collaboration between businesses operating in the same market, may vary depending on the subject of the agreement. In the case of cooperative agreements, competition authorities are able to assess the result of the time frame and modify it later, as the UK competition authority has done in Atlantic Joint Business Agreement concerning UK-US air routes in relation to the uncertainties caused by the pandemic[91]. However, this is not possible for mergers which are characterized by structural long-term effects and therefore need a different approach. Also, the intertemporal nature of these effects might affect consumers' opinion and willingness to pay for environmental benefits. Moreover, the assessment of future effects of environmental effects will still lack of predictions on future consumers' preferences. For this reason, a case-by-case approach might be appropriate to define the right timeframe under which the competition authority will assess environmental effects.

Despite the difficulty that this kind of approach can bring, it is impossible to ignore the fact that environmental benefits or costs will have an impact on future consumers. The Dutch Authority for Consumers and Markets (ACM) in the 2020 "Draft Guidelines on Sustainability Agreements"[92] declares that the competition authority is planning on valuating future benefits by using the social-cost benefit tool used by the government of the Netherlands which we have already analysed. However, the identification of an appropriate time frame for assessing environmental effect remains one of the most difficult challenges that competition authorities may face.

[91] OECD. (2020). *The Role of Competition Policy in Promoting Economic Recovery*. OECD 2020,

[92] ACM. (2020). *Draft guidelines 'Sustainability Agreements*. Authority for Consumers & Markets.

2.2.4 Balancing environmental effects with other effects

Another challenge in the competitive assessment of environmental benefits is balancing them with other effects. Competition authorities may in fact consider parameters like the impact on the price increase and technical performance in a certain market. This is one of the most difficult challenges for competition authorities, and practical examples where the competition assessment included this kind of balancing are limited.

However, also in this case the Dutch draft guidelines include the possibility of balancing other effects in competition assessments. According to the ACM, in the case of sustainability agreements[93] consumers fair share has to be measured by taking into account all the effects in order to balance them. For example, if a sustainability agreement causes an increase in prices in the market, the environmental benefit for consumers coming from the agreement will need to offset the negative impact on prices. The balancing process does not necessarily need to be quantitative due to the difficulty coming from having to confront effects that are not characterized by the same measurement unit. In particular, the Dutch competition authority identifies two cases in which a quantitative approach is not necessary. On one hand, the agreements in which parties' combined market share is lower than 30% since "it can be assumed that the initiative will have to prove its value to buyers or suppliers in order to be successful"[94]. On the other hand, agreements in which the harm to competition is clearly smaller than the environmental benefits, such as a limited price increase that will still guarantee consumers to receive their fair share. In the cases where a quantitative assessment is needed, the ACM either uses environmental prices as the ones adopted by the government of the Netherlands, or willing-to-pay studies as techniques to measure these effects.

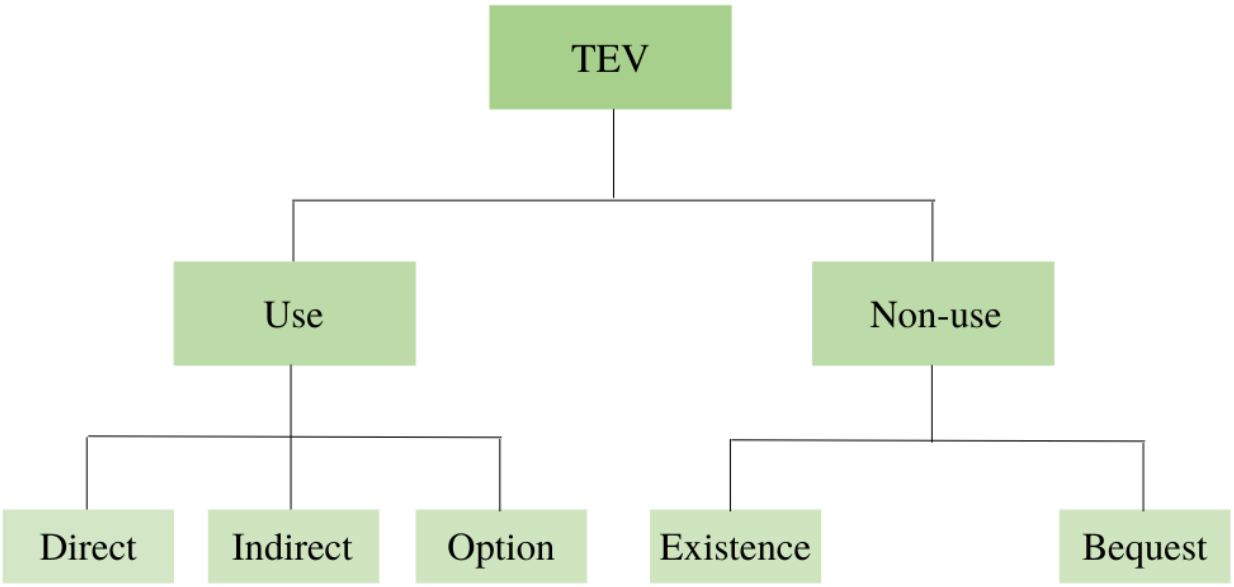
[93] Agreements that do not concern the reduction of negative externalities (environmental-damage agreements) but social or other forms of sustainability.

[94] Hellenic Competition Commission (HCC) & Netherlands Authority for Consumers and Markets (ACM). (2021, January).

2.3 Techniques of environmental valuation

At the base of the measurement of environmental costs and benefits there is the concept of total economic value (TEV). The TEV contains all the factors that contribute to an improvement of humans well-being from an environmental perspective, which can be classified as use or non-use depending on the type of economic value. Use values concern the direct exploitation of the environment to produce a commercial, agricultural or medicinal product; the indirect use of ecosystems to provide goods or services; or the value individuals place on having the option to enjoy something in the future. The non-use value instead refers to the value individuals place on keeping something in existence even if they are not planning to use it for themselves; and the value that individuals place on keeping the good available, leaving it as a bequest for future generations. The TEV is mostly measured though valuation techniques. In particular, the cost-benefit analysis can be interpreted as the measurement of the changes of the TEV.

Figure 7 The classification of the total economic value



Source: OECD. (2006). *Cost-Benefit Analysis and the Environment: Recent Developments.* OECD Publishing, Paris.

2.3.1 The cost-benefit analysis

The cost-benefit analysis (CBA) has been accepted as a suitable tool for measuring environmental effects in terms of gains and losses of human well-being (utility) for many reasons. Firstly, this analysis enables decision-makers to consider the impact of their actions from a rational and holistic point of view, and in the case of environmental effects it gives the possibility to make decisions based on the impact on an entire ecosystem instead of a single group of individuals. Secondly, the CBA is capable of identifying the optimal scale of the decision, confronting it with other options by expressing costs and benefits in the same measurement unit. Thirdly, this analysis also considers the time dimension through a discounting process that helps determining the impact of an action in the future. Finally, the comprehensive approach of the CBA allows to include all individuals' preferences, giving it a "democratic" quality. The basic principle of the CBA is the comparison between the costs and the benefits of certain project in a common measurement unit, which corresponds to monetary values.

A critical issue of the cost-benefit analysis for valuing environmental effect is the discount process. The intertemporal assumption for which the price of a unit of a good in the future is lower than the price of the same unit today, is at the base of the CBA and the discount process measures this difference. In particular, the discounting process assigns a lower weight to a single unit of a good in the future with respect to its current weight, which will decline as time goes by. In the environmental field this principle generates numerous questions since sustainability initiatives are characterized by long-lived costs and benefits that also affect future generations. In order to compare costs and benefits in the same monetary unit the CBA uses shadow prices, comparing them over time through the calculation of their present value by using a discount rate. In particular, the social discount rate (SDR) quantifies the change of the shadow price over a specific time horizon.

To overcome the intergenerational time horizon that characterizes sustainability decision-making, the CBA can rely on the compensation tests. This concept originates from the Kaldor-Hichs criterion[95] for which, the maximum outcome allows winners (current generations) to potentially compensate loser (future generations), creating a link between efficiency and the equity principle. A theoretical contribution can also be found in Farrow[96] who argues that the compensation can be actual instead of

[95]Newman, P. (1998). *The New Palgrave Dictionary of Economics and the Law*. Palgrave Macmillan, London.

[96]Farrow, S. (November, 1998). Environmental equity and sustainability: rejecting the Kaldor-Hicks criteria. *Ecological economics*, 27(2), 183-188.

potential by identifying the specific group that would face a loss from the proposal and calculating its compensation as a value that needs to be at least as great as the net loss.

There are many cases in which the environmental assessment, mainly policy interventions to protect the environment, will be based on their impact on the underlying ecosystem, more precisely on the value change of a particular type of asset, defined as natural capital. In terms of CBA, contributions can be found in the analysis of the sustainability of a land-use activity that could lead to deforestation[97]. However, this example brings up further complications: when the activity of land-use changes, the value of the land changes either positively or negatively, but in the case of deforestation, the loss of forestland could correspond to a gain in agricultural land. There are in fact different effects to consider, as a change in the composition of a portfolio of land assets[98]. Studies on the measurement through CBA of the different effects of a change in the use of natural capital are still in progress, leaving this issue still open to debate. Also, the change in use of natural capital is often characterized by great uncertainty since the effects can be unanticipated, even irreversible in some instances. For this reason, is important to recognize that while CBA still remains important, different approaches might be needed to valuate policy decisions and investments that involve environmental effects.

This matter relates to the general topic of assessing how ecosystems have an impact on human well-being. It is obvious that the application of CBA on environmental phenomena needs to have natural science foundations, which in this case correspond to the ecosystem service framework. The use of ecosystem services creates a bridge between the natural environment and the economic analysis in the valuation of a policy or an investment. Since ecosystem services contribute to human well-being, the use of economics helps understand this anthropocentric aspect. In fact, demonstrating that a certain natural ecosystem positively affects human beings is a fundamental point when finalizing policy interventions to protect said environment. A well-known example is Barbier's study on the value of mangroves in Thailand in terms of ecological benefits (fuelwood, natural habitat, reduced flooding, etc.) compared to the benefits deriving from the alternative land-use for shrimp farming. The study showed that even if financial outcomes encouraged the shrimp activity, the social cost-benefit analysis measured a much higher social value coming from the mangrove natural ecosystem.

Looking more in depth at ecosystem services, from a purely scientific approach an ecosystem is defined as a system composed of living and non-living forms that function together, obvious examples are forests and coral reefs. Every ecosystem provides services that contribute to maintain life on the

[97] Hamilton, K. & Atkinson, G. (2006), *Wealth, Wellbeing and Sustainability*. Edward Elgar, Cheltenham. Hartwick, J.M. (1992). Deforestation and national accounting. *Environmental and Resource Economics*, 2, 513-521.

[98] OECD. (2018). *Cost-Benefit Analysis and the Environment: Further Developments and Policy Use*. OECD Publishing, Paris.

planet, so its economic value is defined by the benefits that it provides to human-beings through its services which can consequently be classified as economic. Examples of such ecosystem services are ecological cycling (vegetation absorbs and stores carbon dioxide reducing its concentration in the atmosphere), self-regulation (natural species interact balancing each other off and avoiding the need for human intervention, like pesticides), and regeneration (ecosystems convert energy and nutrients to generate their own food and resources like the pollination process on food crops). These natural processes are translated into economic services through a classification system that divides them into provisioning, regulating and cultural services. While the first two are immediate, the cultural services are related to the non-use economic value that can be attributed to the environment: pleasant experiences human-beings live by engaging with nature, giving it a sensorial or spiritual value.

A separate discussion deserves the value of biodiversity, which is not explicitly mentioned by these classifications. Even if it can be seen as a service on its own, biodiversity is the backbone of all ecosystems, acting as a central supporting service[99]. For its nature, it has been compared as a form of insurance[100].

Recently, there has been an increasing number of methods to assess the value of ecosystem services and biodiversity. These assessments are based on the theory of economics while drawing on natural science studies. In the case of provision services like food, even if it is easier to compare them to market substitute goods or services' prices, their nature is more economically similar to productive inputs[101]. In other cases, market prices are not able to represent the value of ecosystem services and therefore, non-market valuation methods must be applied. The most used methods are the revealed preference ones that examine individuals' willingness to pay for a related private good on the market to benefit from the environmental good or service, as seen in the case of hedonic price method. However, there are many different techniques that should be considered.

[99] Elmqvist, T. et al. (2010). Biodiversity, Ecosystems and Ecosystem Services. *The Economics of Ecosystems and Biodiversity: Ecological and Economic Foundations*, Earthscan, London.

[100] Pascual, U. et al. (2010). Valuation of Ecosystems Services: Methodology and Challenges. *The Economics of Ecosystems and Biodiversity: Ecological and Economic Foundations*, Earthscan, London.

[101] Hanley, N.D. & E.B. Barbier. (2009). *Pricing Nature: Cost-Benefit Analysis and Environmental Policy*. Edward Elgar Publishing, Cheltenham.

2.3.2 Methods for environmental valuation

With regards to the application of the cost-benefit analysis, the OECD[102] provides guidance to measure the impact of environmental effects and to include it in decision-making processes. Another important tool is given by the Netherlands Authority for Consumers and Markets and the Hellenic Competition Commission. In their already mentioned joint report[103], the competition authorities provide different methods to quantify environmental impacts in the competitive assessment.

Table 4 Methods for environmental valuation

Methods for environmental valuation using case-specific data	
Methods based on market choices (potentially in surrogate markets)	Example: Hedonic prices derived from surrogate markets
Methods based on hypothetical choices or stated preferences	Example: Contingent valuation analysis based on surveys of stated preferences over hypothetical scenarios
Valuation methods for estimating and aggregating case-specific impact	
Averting and defensive behaviour	Example: Estimating avoided costs of defensive expenditures
Valuation using data from existing studies and databases	
Environmental prices databases	Example: Using environmental prices aggregating all health-related costs from the emission of a particular substance in a specific country
Valuation derived from stated policy objectives	
Using market prices for permits or taxes on emissions	Example: CO2 prices from the EU Emissions Trading System

Source: Hellenic Competition Commission (HCC) & Netherlands Authority for Consumers and Markets (ACM). (2021, January). *Technical Report on Sustainability and Competition*

[102] OECD. (2018). *Cost-Benefit Analysis and the Environment: Further Developments and Policy Use*. OECD Publishing, Paris.

[103] Hellenic Competition Commission (HCC) & Netherlands Authority for Consumers and Markets (ACM). (2021, January). *Technical Report on Sustainability and Competition*.

The revealed preference methods are based on the knowledge that environmental goods that do not belong to a specific market are still traded implicitly through other goods, and therefore have an implicit price. These methods require the analysis of data from surrogate markets and can be specific to a particular kind of good like the travel cost method, or they can be applied to many different sectors, like the hedonic price one.

The travel cost method is used to measure the recreational value of natural areas, for which their visitation does not have a clear price in the market. According to this approach, the activities related to the travel to and from a natural area do have a market price. The prices of these activities can help identifying the value of the natural area by defining the cost of travelling to the area and the number of trips taken in a year. The travel cost is determined through surveys that assess fuel expenses or fares expressed in monetary costs and the cost of time taken to travel.

The hedonic pricing instead quantifies the value of a non-market good by observing consumers' behaviour for a related market good. This method is based on the belief that the price of every good in the market is function of a bundle of attributes that depend on the kind of good. For example, the price of a house highly depends on a series of factors such as dimensions, location, noise level and air quality. In terms of environmental effects, the amenity of living in a healthy and quite environment is an example: many consumers would give great value to it but there is no direct proof of its value since it does not belong in the market. However, when looking at the property market, is clear that the value of a house in a healthy and quite environment will be higher than the one of an identical house in a noisier and more polluted area. This method identifies the bundle of attributes and considers the implicit value of an attribute - measured by the respective derivative of the price function - as the average willingness to pay for it in the market. Therefore, the value of amenity is represented by the premium price that a consumer is willing to pay to acquire the first property.

Another revealed preference method is the averting behaviour and defensive expenditure, which is based on the belief that consumers can compensate the lack of a non-market good by buying a more expensive existing good. The cost of the market good is defined defensive expenditure and it represents the implicit price of the related non-market good. An example could be buying double-gazed windows to lower the impact of traffic noise in a household: the price of said windows represents the implicit price for the absence of noise pollution. The cost of illness method is similar, focusing on defensive expenditures on medical goods and services to overcome health issues deriving from air pollution.

Also used to determine the cost of illness are dose-response methods that estimate the loss in output caused by the illness. This estimation needs data that explore the relationship between the air pollution and its impact on the health of society. This relationship is defined in terms of the dose-response function, the mathematical expression of the cause-effect relationship between the exposure to air pollution and health issues. This relationship is expressed by the ratio between the current level of air pollution and a benchmark level, while considering the health risks represented by the risk factor. By confronting the different dose-response functions associated with a change in pollution, so two different levels of pollution in a given year, and by considering the mortality rate of a particular population, it is possible to obtain the total number of deaths caused by the change in pollution and the monetary value of the health damages.

Stated preference methods are based on people's behaviour in hypothetical markets. The hypothetical nature of the markets taken into consideration do not cause biases since it can be helpful to value environmental features of a product that it has not already been released in the market. Among the stated preference methods, the contingent valuation method (CVM) is the most popular in the environmental field. This technique values non-market goods by defining their features, institutional context and financing. The analysis of the hypothetical market is performed through surveys in which consumers are asked to express their willingness to pay for a hypothetical change in the environmental quality of a good. Other stated preferences techniques are the choice modelling and the conjoint analysis. The choice modelling is mainly used to overcome gaps in the contingent valuation method, since it allows to value also multidimensional changes of a good.

A different approach is given by valuation methods that use existing studies and databases. One example is the 2017 Environmental Prices Handbook of CE Delft, a database that defines prices constructed on the social cost of pollution, indicating the "the loss of economic welfare that occurs when one additional kilogram of the pollutant finds its way into the environment"[104]. The environmental prices in question represent values for an average emission source and an average emission area for the Netherlands in 2015.

[104] Ibidem.

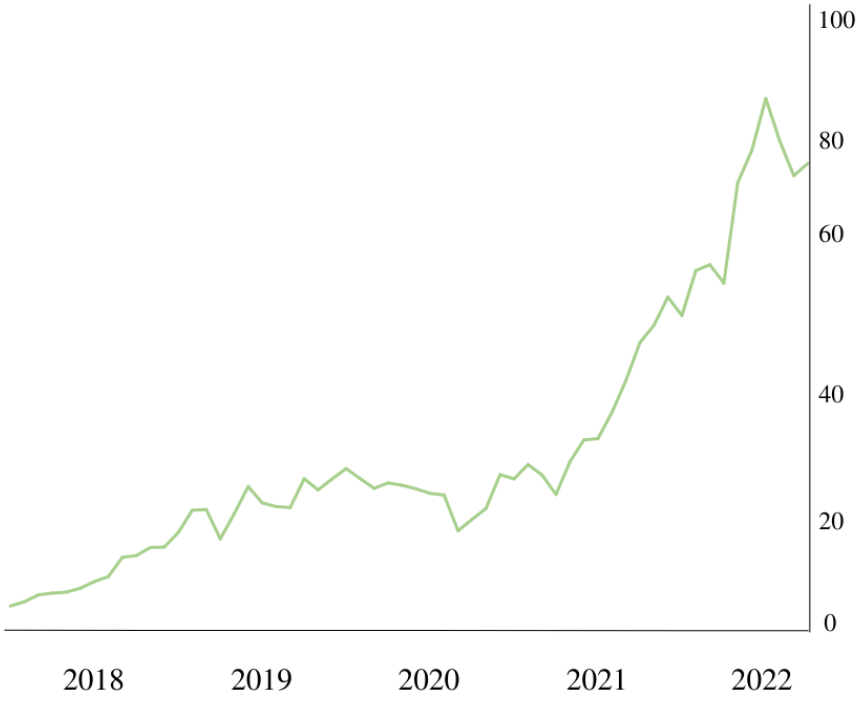
Table 5 CE Delft Handbook of environmental prices for atmospheric emissions

Substance		**Lower**	**Central**	**Upper**
Carbon dioxide	CO_2	0.014	0.057	0.057
Chlorofluorocarbons	CFC_{11}	99.6	313	336
Ultra-fine particulate matter	$PM_{2,5}$	56.8	79.5	122
Particulate matter	PM_{10}	31.8	44.6	69.1
Nitrogen oxides	NO_X	24.1	34.7	53.7
Sulphur dioxide	SO_2	17.7	24.9	38.7
Ammonia	NH_S	19.7	30.5	48.8
Volatile organic compounds	NMVOC	1.6	2.1	3.15
Carbon monoxide	CO	0.0736	0.0958	0.152
Methane	CH_4	0.448	1.75	1.77

Source: CE Delft. (2018). *Environmental Prices Handbook 2017: Methods and Numbers for Valuation of Environmental Impacts.* Delft, Netherlands: CE Delft.

Valuation methods also derive from stated policy objectives, since the implementation of market-based policies by a regulatory authority generates an implicit price (a shadow cost) for the environmental good regulated. The EU Emissions Trading System, for example is based on a cap-and-trade dynamic which estimates a maximum amount of greenhouse gas emissions authorized in a year. The permits to emit said amount is given to companies which can trade them in a secondary market for an oscillating price that represents the cost of emitted CO2 per ton. The price of the emission allowances is subject to changes in the economy and in the political stability. As it can be seen from the graph, while the price per ton stayed below 10€ before 2018, it has then risen up to nearly a 100€ in the course of 2022, due to the instability of the present situation.

Figure 8 EU Carbon Permits price over the last 5 years



Source: *EU Carbon Permits*. Trading Economics. Retrieved April 20, 2022, from https://tradingeconomics.com/commodity/carbon

By comparing these prices with actual carbon prices, it can be seen that the emission costs exceed them. It has been observed that these prices are below the ones suggested by the World Bank to reach the objectives of the Paris Agreement (Stiglitz and Stern 2017). The actual cost of CO_2 emissions is expressed through the social cost of carbon.

The social cost of carbon (SSC) is a key tool to include environmental effects in the cost-benefit analysis of public policies, representing the present cost in social welfare of emitting an additional unit of carbon. The SSC can be used to define carbon price for emissions, reflecting the damages of releasing an additional unit of greenhouse gases in the atmosphere or the benefits coming from inducing a reduction of emissions. In terms of economics, the SSC can be equated to the optimal economic outcome, meaning the optimal carbon tax to apply to emissions so that economic agents internalized their cost, avoiding negative externalities. To understand this equation, it is necessary to take a step back and analyse the properties of the SSC and its dynamics. First of all, CO_2 is a stock pollutant, meaning that the SSC reflects the impact of an additional unit of carbon to the stock over a defined time horizon.

Reflecting the future effects of the additional emissions, the SSC will be discounted to define its present value, given by the equation:

$$SSC = D'(S') / r + \varphi$$ [105]

The social cost of carbon is equal to the present value of the amount of the flow of the additional damages in a year (S' represents the stock of CO_2, D'(S') the flow of the additional damages at each point in time, r is the discount rate and fi is the decay rate of the stock). Since in the optimal economic equilibrium the additional benefits should be equal to the additional costs, the optimal carbon price should be equal to the SSC. However, the optimal carbon price is rarely used since the SSC is often calculated through non-optimal approximations that are closer to the reality of market prices, taking into account also the time variable. Since the concentration of carbon emissions evolves over time, the optimal carbon price will also vary. The sensitivity to time is not the only element that makes this calculation method complex, there are in fact other parameters to consider such as the impact on climatic phenomena and the related effect of these on the economic outcome, characterized by high uncertainty.

The methods cited in the Report are helpful tools to quantify environmental effect in competition assessments, including present and future benefits and damages for the entire society. This approach has also a concrete example for the European Commission through the assessment of the CECED case[106], which will be discussed later. The example mentioned show that the inclusion of environmental effects in the competition framework is not only possible and allowed by EU Treaties, and it does not change the scope of competition. In fact, their inclusion does not mean that competition law should not focus on economic effects, but that the definition of consumer welfare should take into account other variables that are often non internalized in the price[107]. The neo-liberal economic approach which is focused on financial considerations, risks increasing the existing gap between economy and reality. In the words of Vaclar Smil "until economics returns to the physical rules of human existence, we'll always be floating in the sky and totally detracted from reality."[108]

[105] OECD. (2018). *Cost-Benefit Analysis and the Environment: Further Developments and Policy Use*. OECD Publishing, Paris

[106] European Commission. (1999). Commission Decision of 24 January 1999 relating to a proceeding under Article 81 of the EC Treaty and Article 53 of the EEA Agreement (Case IV.F.1/36.718.CECED). *Official Journal of the European Communities*, 187, 47.

[107] Gerard, D. (April, 2018). Fairness in EU Competition Policy: Significance and Implications. *Journal of European Competition Law & Practice*, 9(4), 211–212.

[108] Smil, V. (2019). *Growth: From Microorganisms to Megacities* (1st ed.). The MIT Press.

III PART - THE COMPETITIVE ASSESSMENT OF SUSTAINABILITY AGREEMENTS

3.1 The sustainability gap in the horizontal guidelines

The economic analysis of environmental effects has evidenced how competition authorities can include them in their assessments by considering their impact on consumers' welfare. This inclusion is surely smoother in situations where sustainability initiatives are compatible with competition law, whether through agreements, episodes of abuse of dominance or merger control. Nevertheless, this analysis will be focused on horizontal agreements, exhibiting cases in which environmental protection and competition law are compatible and in which they instead clash, also analysing the current normative in perspective of its planned revision.

By breaking down the interaction between these two dimensions, it is possible to identify situations in which competition authorities intervene to prohibit agreements that may be harmful to the environment, and situations instead in which competition provisions allow sustainability measures to be implemented. These two circumstances correspond to forms of preventative and supportive integration which have been compared to the use of a sword and a shield[109]. In both cases, integration can take two forms depending on the existence of a conflict or not between sustainability and competition law. More precisely, the first form is characterized by the simultaneous achievement of environmental quality and competition without any conflict since the environmental activities involved do not fall under the scope of competition law. The second form is instead characterized by the need to balance the two elements according to the boundaries set by the competitive framework.

In the preventative integration form, competition law represents a tool to prevent environmental damages or to increase the quality of a certain market in terms of sustainability. This is the case of greenwashing cartels: agreements through which firms make sustainability claims to mask their anticompetitive objectives. Sustainability claims include affirmations about a company's conduct or a product's characteristics that enhance their positive environmental impact mainly in terms of emissions reductions or protection of biodiversity. In this regards, a new EU proposal[110], which is still in work, will require firms to make their sustainability claims reliable and verifiable by ensuring that consumers are not misled about their commitments and the environmental quality of their

[109] Holmes, S. (2020). Climate Change, sustainability, and competition law. *Journal Antirust Enforcement*, 8(2), 354-405.

[110]European Commission. (2020, June 23). Consumer policy – strengthening the role of consumers in the green transition.

products, that the comparison between products can be performed only on the basis of a clear method of comparison, and that sustainability labels are based on official certifications provided by third parties. In this regard, the Dutch Authority for Consumers and Markets recently published the new "Guidelines on Sustainability Claims" in which it defines five rules of thumb for competitive and truthful sustainability claims. These rules require companies to make sustainability claims that are clear and easy to understand, and that are backed up by updated facts. Moreover, the rules demand a fair comparison of the sustainability qualities between products or companies, a transparency on the provenience and the meaning of the labels claimed, and a truthfulness in the company's present and future efforts in the sustainability field. Similar recommendations are provided by the guidance[111] published by the UK Competition and Markets Authority which, even if they have relevancy only in the United Kingdom, still represent a useful tool for companies, despite their location. The CMA requires claims to be truthful, clear, complete by not omitting relevant information and by considering the sustainability of the product along their full cycle, and fair in the comparison with other products or companies. However, episodes in which competition law has been a "sword" against environmental deterioration are limited. The reason is the common interpretation of environmental effects as a consequence of innovation practices, since in many cases where the intervention of competition authorities led to an increase in sustainability, the main objective was to protect and pursue innovation. Therefore, the competition law normative should expand its scope and investigate the relationship between innovation and sustainability, not only considering effects on innovation where sustainability innovation is concerned[112].

In the supportive integration form cooperation is allowed for its support to sustainability, shielding it from competition authorities' prohibitions. One of the reasons behind this, is the presence of private initiatives pursuing environmental interests that may not fall under the competition law prohibitions. An example are NGOs: in the Germany v Commission[113] case the Court found the NGOs' activities not subject to competition law due to their lack of economic nature, which is the defining factor for undertakings within the EU competition law. Another possibility for supportive integration is the State action defence through which the State requires undertakings to perform a certain sustainability conduct, forcing them to take initiatives that might contrast competition. Finally, the last case in which supportive integration may be performed, is during the assessment of the effects on competition. While the previous Horizontal Guidelines contained a clear distinction between agreements that

[111] Competition and Markets Authority. (2022, January 14). Misleading environmental claims. GOV.UK.

[112] Lianos, I. (2018). Polycentric Competition Law. *Current Legal Problems*, 71(1), 161–213.

[113] Federal Republic of Germany v European Commission, Judgment of the General Court (Fifth Chamber), 12 September, 2013, T-347/09, 2013 ECLI:EU:T:2013:418.

'almost always', 'may' or that are 'not likely to' restrict competition, this classification has been removed from the current guidelines[114]. However, the distinction was helpful to understand the different nature of agreements. In particular, agreements that almost always caused restrictive effects were cartels in which the environmental objective was only a pretext for firms to engage in a collusive behaviour; agreements that caused restrictive effects were ones where the parties' decision-making on the production was affected, influencing their sales, or ones that affected the output of third parties; agreements that were not likely to restrict competition were the ones that fall within Article 101(1) of the Treaty on the Functioning of the European Union (TFEU). Also, supporting integration is needed in cases where the balancing between competition and sustainability is necessary. It is important to say that there is limited room for such cases in the current normative, one more reason to have high expectations on the review of the Horizontal Guidelines. In particular, when the exemptions of Article 101(3) are crucial for the competitive assessment, the possibilities of integration considered above are insufficient and the benefits cannot be interpreted as qualitative benefits for the consumers, leaving the definition of consumers and of the related benefits still unclear.

3.1.1 The current legal framework

The legal framework for horizontal agreements in the European Union is mainly represented by Article 101 of the TFEU. The article sets four cumulative conditions that determine if agreements provoke restrictions, distortions or negatively affect competition. In particular, agreements are not prohibited if: they improve the production or distribution process of goods or they promote progress in the technologic and economic fields; the benefits derived are also shared with consumers; the agreement is essential to obtain the objectives set by the undertakings; and the undertakings do not have the possibility to gain a substantial market share, eliminating competition.

The current reference for assessing agreements within Article 101 is the 2011 "Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements". The first step in the assessment under Article 101(1) is identifying whether the agreement has an anticompetitive outcome by object or by restrictive effects. The restrictions by object are present when the nature of the agreement is anti-competitive, so when its content, objective and economic and legal context restrict competition. The other possible kind of restriction is determined by the presence of restrictive effects, whether they are actual or potential. The restrictive

[114] Nowag, J. (November 1, 2019). Competition Law's Sustainability Gap? Tools for an Examination and a Brief Overview. *Lund University Legal Research Paper Series.*

effects are represented by impacts on market variables like price, quality and product differentiation, that reduce competition and economic actors' independence. The second step concerns the third paragraph of the article. Even if an agreement falls within the first section of Article 101, it is not automatically considered unlawful. In fact, the third paragraph of the article sets a legal exception for agreements that generate anti-competitive effects that are outweighed by benefits.

More precisely, agreements that do not fall in the Article 101(1), may fall under the cumulative conditions included in Article 101(3): "the agreement contributes to improving the production or distribution of goods or to promoting technical or economic progress, while allowing consumers a fair share of the resulting benefit...". The framework provided by this part gives the possibility to exempt agreements if the pro-competitive benefits outweigh the restrictions on competition. If an agreement does not fall within these two paragraphs, it should be automatically considered void by Article 101(2). To fully comprehend what kind of agreements may be exempted under the third paragraph, it is helpful to analyse its content.

The improvement of production or distribution and the promotion of technical and economic progress does not imply that the economic element is strictly necessary, representing only one of the possibilities. For this reason, there is no need for the contributions to be expressed in economic terms. The nature of these contribution is clarified by the Commission through the definition of cost efficiencies and efficiencies of qualitative nature where examples of qualitative efficiencies are agreements over attributes like biodegradability or eco-friendliness. Also, for environmental benefits that may be considered as non-economic, there is a wide range of valuating methods and techniques, as seen in the previous part. Moreover, there is no reference to pro-competitive effects, meaning that the effects that are considered anti-competitive within Article 101(1), are not balanced by the pro-competitive ones under Article 101(3)[115]. The condition of fair share for consumers recalls the discussion about the identification of the relevant market. It has already been discussed that environmental effects affect society as a whole, and not a narrow group of consumers.

The cases in which competition law and environmental protection overlap are represented by pro-competitive agreements that also result in environmental benefits or when anti-competitive agreements provoke environmental damages. While the latter mainly refers to greenwashing cartels, the first is represented by environmental agreements. The European Commission defined environmental agreements as "agreements by which the parties undertake to achieve pollution abatement, as defined in environmental law, or environmental objectives [...]. Therefore, the target or

[115] Holmes, S. (2020). Climate change, sustainability, and competition law. Journal of Antitrust Enforcement, (8)2, 354-405.

the measures agreed need to be directly linked to the reduction of a pollutant or a type of waste identified as such in relevant regulations."[116] Moreover, Article 191 of TFEU specifies the nature of environmental objectives, claiming that: "Union policy on the environment shall contribute to pursuit of the following objectives: preserving, protecting and improving the quality of the environment; protecting human health; prudent and rational utilisation of natural resources; promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change."

According to the legal framework provided, it is possible to identify various categories of environmental agreements that are unlikely to contrast competition law. First, agreements to set common objectives as CO_2 emissions reduction, or standards on the environmental performance of goods in which the contribution of the parties is not binding, and the terms are not discriminatory. Second, agreements to improve the environmental quality of existing goods or to develop a new product that do not restrict the choices available in the market and that do not highly increase the costs. Finally, agreements involving the interaction of different parties along the supply chain that respect national and international standards and rules. However, the 2010 Horizontal Guidelines only cover the case of standardization agreements, leaving other examples uncovered.

3.1.2 Standardization agreements

Standardization agreements define standards regarding technical or quality specifications for current or new products, which can also concern environmental performances and sustainability features. Their main goal is to produce a positive economic outcome and encourage the improvement of the conditions of the market by lowering production and distribution costs or increasing competition by promoting innovation and product differentiation. However, the outcome could be also negative for competition, controlling the production, creating barrier to new entrants and restricting price competition. In fact, firms could engage in a collusive conduct that eliminates price competition and limits innovation.

Normally, when the participation in the agreement is unrestricted, giving access to the standard in a transparent and non-discriminatory manner, the agreement does not fall within Article 101(1) by object. Also, when members remain independent and free to work on alternative standards, and the

[116] European Commission. (2001). Commission Notice—Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements. *Official Journal of the European Communities*,3,2, para 179.

participation in the elaboration of the standard is open to all the competitors that will be affected by it, the agreements should not give rise to restrictive effects. In this regard, the market share of the firms complying with the standard is an important element to assess the effects of the agreement. The requirements of Article 101(3) are instead fulfilled when the efficiency gains coming from these agreements compensate the resulting restrictions to competition.

The example provided by the guidelines that regards environmental concerns is an agreement between washing machines producers to produce more expensive products that comply with environmental criteria. The members of the agreement reach together a market share of 90%, and the third parties involved in the market suppliers of inputs and electric utilities face a reduction in their output. The assessment of the agreement takes into consideration the reduction of competition and product variety, and the price increase. Consequently, it would raise restrictive effects to competition, falling within Article 101(1). However, when considering the conditions of the third paragraph, it can be observed that the new more environmentally friendly products provide innovation and cost efficiencies for the consumers, since the use of the new washing machine would lower their expenses in terms of water and electricity consumption. Even if these efficiencies are realised outside of the relevant market, they should be taken into account since the two markets are related and the consumers that face the price increase and the reduction of product differentiation are the same ones that will benefit from the cost efficiencies. Also, it is observed that other optional agreements are less cost-effective. The compensation of the restrictive effects on competition by the efficiencies leads the agreement to fall within Article 101(3), making it valid.

Another example is provided by the submission of the Office of Fair Trading of the United Kingdom to the Horizontal Guidelines. The submission also includes an example of an agreement that does not fall within Article 101(1). The agreement in question is between the main producers of yogurt in a Member State, including manufacturers, distributors and importers of the good from other Member States, and the packaging suppliers. The object of the agreement is the development of a new packaging for yogurts made from recyclable plastic, which is cheaper than the material previously used. This initiative has been pushed by the government's plan to reach recycling goals, and the details of the agreement have been open and transparent through an open consultation of the parties and the publication of the final decision on an industry trade association website. The acceptance of the agreement by the parties, which represent 70% of the market for yogurt in the Member State, would result in the institution of a new standard in the industry even if not specified by the law. A possible concern for the competition authority is the creation of barrier to entry and the exclusion from the market for importers that use different materials in their country and need to change them to

meet the standard to sell in the Member State. However, the voluntary nature of the agreement and its transparency enables all market participants and new entrants to pursue this standard. Also, the new packaging does not lead to a reduction in differentiation of the offers of different manufacturers, especially in terms of prices, avoiding a restriction of competition. Therefore, the agreement does not fall within Article 101(1) of the TFEU.

A real-life example of a standardization agreement involving environmental effects is the Chicken of Tomorrow case assessed by the Dutch competition authority. In 2013 producers and retailers of the poultry and meat processing industries formed an agreement based on a new sustainability standard that improved the welfare of the chickens used to produce and sell meat. The standards involved growth rates, use of antibiotics, quality of the feed, living conditions and emissions' reduction. The agreement mainly affected the buying conditions for supermarket chains, which needed to change their buying conditions. The ACM found the agreement to be anti-competitive, falling under the prohibition of cartels of the Dutch Competition Act. The reasons were the exclusion from the market producers that did not join the agreement, an increase in price of 1.46€ per kilogram and a restriction of choices for consumers. According to the competition authority, there were more efficient and less restrictive alternatives available to increase the environmental quality of the industry. The agreement also violated Article 101(1) of the TFEU by having an impact on the producers and retailers that exported the chicken meat from a Member State to Dutch supermarkets. In fact, the non-Dutch meat that was not produced according to the standards could not be sold in the Netherlands.

The assessment proceeded to understand if the benefits of the agreement outweighed the restrictions to competition, as required by the exception criteria under the Dutch Competition Act which correspond to Article 101(3) of the TFEU. The benefits and costs originated by the agreement have been analysed through the consultation of participants, experts on animal welfare, consumers and others. More precisely, the value that consumers put on the benefits were assessed through a willingness to pay test which was conducted through a conjoint analysis, asking consumers how much value they gave to animal welfare and environmental benefits as well as public health criteria in their purchasing decisions. The results showed that consumers preferred paying more for the higher animal welfare standards but only for half of the cost increase: they were willing to pay an additional cost of 0.68€ per kilogram for the improvement in the conditions of the animals and 0.14€ for the positive effect on the environment, reaching a total benefit of 0.82€. Since the additional cost of 1.46€ per kilogram was not compensated by the benefits, the agreement did not meet the exception criteria[117].

[117] ACM. (2015). ACM's analysis of the sustainability arrangements concerning the 'Chicken of Tomorrow'. Authority for Consumers & Markets.

The result of the competitive assessment defined the Chicken of Tomorrow standardization agreement as unlawful since it caused a restriction to competition in the market for consumers of chicken meat. Following this decision, the ACM advised the organizers of this agreement to change it so that it could meet the legal requirements of the Dutch and European competition law. At the same time, the Dutch Parliament stressed the need to expand the topic of environmental agreements within competition law in the EU.

3.1.3 The weaknesses in the current framework

From the cases analysed a clear picture of the current European competition law framework emerges: the main obstacle for environmental agreements is that competition law seems to hinder sustainability initiatives, showing a gap in the current normative[118]. In particular, problems arise when sustainability benefits are difficult to measure through the valuation techniques used by competition authorities. However, this is not an issue that competition authorities should solve on their own. The narrow competition approach is part of a wider gap in the sustainability field, a gap that current legislators, decision-making authorities and politic forces at the European level should urge to fulfil. In fact, claiming that there is a deficit in the competition law system does not mean that the only solution to climate change is in the competition field. However, sticking to the main topic of this analysis, many weaknesses can be identified.

Environmental agreements may be hindered by competition law for overlooking market failures in the assessment of consumers fair share and for considering anti-competitive initiatives that are necessary to achieve greater environmental quality. The main problem with the current normative is the lack of attention towards environmental agreements since, as said before, they were cut out from the 2010 Horizontal Guidelines. In particular, agreements in which the first mover disadvantage is present in the market, discouraging producers to invest in greener products, should be covered by competition law. Leaving sustainability issues to legislators while letting competition authorities only to address cartels with sustainability claims, is a conservative view that ignores the present role of private economic actors in environmental concerns[119].

[118] Gerbrandy, A. (2017). Solving a Sustainability-Deficit in European Competition Law. *World Competition*, 40(4), 539 – 562.

[119] Monti, G. (2020). Four Options for a Greener Competition Law. *Journal of European Competition Law & Practice*, 11(3–4).

To understand the journey of competition law in environmental agreements, it is useful to analyse the last exemption given by the Commission to environmental agreements, the CECED case. The CECED case is the most notorious example of a phase-out environmental agreement in the context of the European competition law. When firms agree to phase-out a category of products that is considered less environmentally friendly, the competitive assessment considers the effects of eliminating a range of products on innovation depending on the resulting market share of the agreement which could lead to a mandatory cap in the market. The Conseil Européen de la Construction d'Appareils Domestiques (CECED) is an association that coordinates at the European level domestic appliances manufacturers and the related trade associations. The members joined an agreement to phase out of the EU market washing machines that had low energy performance rates. In particular, the appliances are classified based on their energy efficiency on a scale from A to G. The agreement included the exit from the market of washing machines that were rated below D from 1998 and below C from 2000. The agreement originated higher production costs and a combined market share over 90%, reducing consumer choices. However, the durable goods nature of washing machines originated savings in energy consumption and reductions in emissions, creating benefits for consumers and society. The collective environmental benefit assessed by the Commission resulted in cost savings between 41€ and 61€ per ton of carbon dioxide, 4000€ and 7000€ of sulphur dioxide, and 3000€ and 5000€ of nitrous oxide. The European Commission found the agreement to not be restrictive of competition under Article 101(3) since: "the benefits to society brought about by the CECED agreement appear to be more than seven times greater than the increased purchase costs of more energy-efficient washing machines."[120] Two years after this exemption, the 2001 Guidelines on Horizontal Agreements were published by the Commission, dedicating a whole chapter to environmental agreements. The guidelines explained the circumstances in which Article 101(3) could be applied, like in the CECED case, in which the Commission would consider the "net contribution to the improvement of the environmental situation overall."[121], being in line with the assessment of individual and collective benefits.

However, from 2004 the Commission adopted a stricter approach to the guidelines, taking a more economic approach and limiting the role of non-economic factors in competitive assessments. In the Guidelines on the application of Article 81(3) of the Treaty, the Commission claimed that "goals pursued by other Treaty provisions can be taken into account to the extent that they can be subsumed

[120] European Commission. (1999). Commission Decision of 24 January 1999 relating to a proceeding under Article 81 of the EC Treaty and Article 53 of the EEA Agreement (Case IV.F.1/36.718.CECED). *Official Journal of the European Communities*, 187, 47.

[121]European Commission. (2001). Commission Notice—Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements. *Official Journal of the European Communities*,3,2, chapter 7.

under the four conditions of Article 101(3)."[122] The restrictive approach was then pursued in the current guidelines on Horizontal Agreements, which as it has been seen, included environmental agreements in the category of standardization agreements and provided an example similar to the CECED case in which however, the reduction of pollution is not considered as a relevant collective environmental benefit under Article 101(3). This approach limits to consider effects that cannot be qualified as economic efficiencies and that do not concern consumers in the relevant market, ignoring a wide range of benefits such as increased labour rights, protection of ecosystems and public health. This resulted in the limitation of exemptions, going from 141 agreements exempted under Article 101(3) between 1965 and 1998 to none since 2004[123]. These results are both damaging for competition and society since there are several cases in which an agreement may be necessary and therefore should be exempted under the third paragraph. It is the case of agreements for open access resources where the property rights are not present and market failures may arise, like fisheries where overexploitation and threats to biodiversity are very common. An agreement that defines property rights can be efficient both from a competitive and an environmental point of view by defining market shares and setting barriers to entry. Even if the direct effect of such agreements may be negative for current consumers by raising prices or limiting their choice, future consumers will benefit from a sustainable market. For this reason, the agreement should be exempted under Article 101(3) for passing the fair share test.

However, it is important to remind that unlike the guidelines which do not have any force of law, Article 101(3) does not restrict testing the benefits in the same relevant market but it focuses on the determination of the fair share for consumers in general. As a consequence, the benefit can be collective, giving to consumers a fair share of it by benefiting the society to which they belong. Also, economic progress is one of the possibilities through which an agreement can meet the exemption, there is no requirement to translate all the effects into economic efficiencies. Under Article 101(1) the strict approach has led to overlook environmental effects in terms of collective benefits or damages. The main obstacle to consider these benefits, is the narrow view of consumers in the analysis of their welfare. It has been argued that the article itself does not require a strict consumer welfare test so there is no reason for the guidelines to suggest the commission to follow a narrow approach. As already mentioned, in cases where society is affected by environmental benefits or damages, the consumer welfare analysis should take into account also consumers outside of the

[122] European Commission. (2004). Communication from the Commission — Notice — Guidelines on the application of Article 81(3) of the Treaty. *Official Journal of the European Communities*, 101, 97, para. 42.

[123] Veljanovski, C. (2021). Collusion as Environmental Protection - An Economic Assessment. Journal of Competition Law & Economics.

relevant market. Furthermore, a considerable gap can be found in promoting sustainability by competition law through targeting undertakings that assume behaviours that threaten sustainability. As mentioned before, cases in which competition law has prevented environmental deterioration are limited. In particular, sustainability concerns are mainly tackled through the assessment of other harmful behaviours, such as preventing innovation[124]. The cause seems to be the existence of a dividing line between competition law and environmental law, by which the scopes are different and separated, an example being the assessment of the European Commission of the Car Emissions case.

[124] Nowag, J. (November 1, 2019). Competition Law's Sustainability Gap? Tools for an Examination and a Brief Overview. *Lund University Legal Research Paper Series.*

3.2 The Car Emissions case

The objective of this dissertation is to frame the current European competition law normative on horizontal agreements in the field of environmental protection and to compare it with its revision brought by the review of the Horizontal agreements guidelines. In order to fulfil this purpose, the analysis of Car Emissions, a recent case assessed by the European Commission is going to be the object of an evaluation. More precisely, to provide a clear picture of this case and the influence of the current normative on sustainability agreements, data has been collected through official documents of the European Commission and other competition authorities, analysis by experts in the sector (reports, articles, interviews, company statements), and finally a personal contribution on the case build through methods provided by the Report of the Dutch and Greek competitive authorities: contingent valuation and the calculation of environmental impacts as performed through a dose-response function.

3.2.1 The infringement

In October 2017 the European Commission carried out inspections at the headquarters of a car manufacturer in Germany due to concerns about the conduction of anticompetitive activities by several car manufacturers in the country under Article 101 of the TFEU. The firms under investigation were BMW, Daimler, Volkswagen, Audi and Porsche (the last two being part of the Volkswagen group), also called the "circle of five". They were suspected of avoiding competition through an agreement on technologies to reduce petrol and diesel emissions of passenger cars. According to the words of the Commissioner in charge of competition policy, Margrethe Vestager: "The Commission is investigating whether BMW, Daimler and VW agreed not to compete against each other on the development and roll-out of important systems to reduce harmful emissions from petrol and diesel passenger cars. These technologies aim at making passenger cars less damaging to the environment. If proven, this collusion may have denied consumers the opportunity to buy less polluting cars, despite the technology being available to the manufacturers."[125]

In particular, the procedure was related to emission control systems, namely selective catalytic reduction systems (SCR) and otto particulate filters (OPF), technologies adopted in the European Economic Area (EEA) to reduce harmful emissions of nitrogen oxides and particulate matter from passenger cars with diesel and petrol engines. The Commission preliminary view was that the five

[125]European Commission. (2018, September 18). *Antitrust: Commission opens formal investigation into possible collusion between BMW, Daimler and the VW group on clean emission technology* [Press release].

car manufacturers had violated EU antitrust rules from 2006 to 2014 by participating in a collusive scheme that went on through technical meetings in which they coordinated their strategies to limit the dose of AdBlue[126] in their exhaust gas streams and to delay the introduction of OPF in their petrol passenger cars. On 8th July 2021, the Commission adopted the decision concluding that the five undertakings participated in an infringement by object of the prohibition of cartel agreements to limit or control production, markets, technical development, or investment under Article 101(1)(b) of the TFEU and Article 53(1)(b) of the Agreement of the European Economic Area.

The collusive behaviour started in 2009 when the five firms agreed to use small AdBlue tanks with a range of 10000 km which, according to them, corresponded for most car manufacturers to tank sizes of 8 to 10 litres with comparable refill intervals and an average consumption of 0.8 to 1 litres per 1000 km for the cars developed and produced in the EEA, obtaining advantages in terms of vehicles weight, available construction space, fuel consumption and CO_2 emissions. In 2011, Daimler, VW and BMW adopted as a common goal to move to smaller AdBlue tanks until 1st October 2014, reducing not only their sizes but also the range between refills. However, the tank sizes and ranges were not uniformed, leaving them above the volume discussed. Despite their estimates on average consumption, the NOx cleaning strategies used by the firms differed significantly. The manufacturers were aware of the fact that a consumption of 0.8 to 1 litres per 1000 km would be sufficient to meet the Euro 6 standards[127] while also knowing that a higher quantity of AdBlue, leading to shorter ranges or bigger tank sizes, could have determined a more effective reduction of NOx emissions beyond regulatory requirements under the driving condition of over-fulfilment.

Moreover, they were aware that the NOx cleaning strategy followed by each of them in the EEA was not exploited to its full potential, going beyond the legal standards and that the introduction of stricter requirements would cause the increase in AdBlue consumption. These information were exchanged during regular meetings between the parties together with other details on characteristics of vehicle models in terms of tank sizes and ranges, increasing the transparency on the use of SCR technologies and the coordination of their competitive activities, leading to a collusive outcome. According to the five undertakings, the environmental performance based on NOx emissions was relevant for competition, using it also for advertising purposes. The collusion limited consumers' choice in the market, forcing them to purchase one of the models with the coordinated small volume of AdBlue tanks.

[126] Urea injected in exhaust gas stream to reduce diesel passenger cars' harmful emissions of nitrogen oxides.

[127] The legal framework for passenger cars regarding emissions in the EEA is Directive 2007/46/EC of the European Parliament and of the Council, while the provisions on emissions standards relevant are Euro 5 (2009) and Euro 6 (2016).

Based on this, Daimler, BMW, Volkswagen, Audi and Porsche were considered direct participants of the infringement, entering an agreement which by nature restricted competition in terms of product characteristics of diesel passenger cars, of technical development of NOx cleaning with SCR systems, and of consumers choice. Instead, the delay of the introduction of OPF in the petrol passenger cars was not pursued due to insufficient evidence of an infringement. The Commission required the undertakings to retain from participating in agreements with the same restrictive nature and it imposed a fine.

The fine was calculated according to the 2006 Guidelines on Fines by considering the relevant value of the parties' sales of diesel passenger cars with SCR systems in the EEA multiplied by the number of years or fractions of the years in which the firms participated in the infringement, reducing the fine by 20% due to the absence of previous sanctioning on cartels. The calculation of the relevant value of sales was performed by taking the turnover obtained by the parties in the last year of the infringement and the sales of diesel passenger cars with SCR systems in the EEA, obtaining a value of 16%. Since Daimler was the first to disclose the existence of the collusion by submitting information and evidence under the conditions of the 2006 Leniency Note, it was granted immunity from fines. While Volkswagen, Audi and Porsche were fined jointly for 466172000 €, Volkswagen and Audi always jointly for 36190000€, and BMW was fined for 372827000€[128]. The total fine imposed amounted for 875 million euros, signalling the first time that the Commission found cartel behaviour based on technical elements, as opposed to price or market share cartels.

[128] European Commission. (2021). Commission Decision of 8 July 2021 relating to a proceeding under Article 101 of the Treaty on the Functioning of the European Union and Article 53 of the EEA Agreement (Case AT.40178 – Car Emissions). *Official Journal of the European Communities*, 458,16.

3.2.2 A weak example of how competition law contributes to sustainability

According to the Executive Vice-President Vestager, the car manufacturers deliberately avoided competition on lowering emission beyond the EU emission standards despite the technology being available. The message left by the Vice-President was that manufacturers in the EEA should compete on doing better than the minimum required, exploiting greener technologies to their full potential and always striving for innovation and sustainability to meet the objectives set by the Green Deal.[129] Through SCR systems, NOx emissions in exhaust gases can be reduced by up to 90% or more when using a liquid urea solution like AdBlue[130]. Therefore, the amount of AdBlue used is crucial for the effectiveness of the emissions reduction. The impact of this collusion on the European car market was profound: during the relevant period, half of passenger cars in the EEA had diesel engines and the other half petrol ones. Also, Daimler, Audi, Porsche and BMW were reputed the main German premium car manufacturers while Volkswagen was considered the leader in quality among big car manufacturers. Therefore, the European Commission claimed that this cartel investigation was an example of how competition law can contribute to sustainable development.

However, some questions may be raised. The Commission specified that the investigation was not focused on the compliance with EU car emission standards, and it was limited to alleged violations of competition law, not being about "possible breaches of environmental legislation."[131] In the Commission decision there was no mention of environmental concerns coming from the five undertakings deliberately avoiding improving the reduction of emissions despite the possibility. As a consequence, the fines did not include the undermining of environmental objective, which would have led to a higher fine. The damages taken into account concern consumers' reduction of choice in the market, leaving no space for the impact of environmental effects on their welfare.

It comes naturally to wonder why the Commission ignored this aspect in the assessment given the fact that different techniques are available to measure environmental effects - the technical report by the Dutch and Greek competition authorities being one clear example - and that the acknowledgment of a collusion undermining environmental objectives would have led not only to a higher fine, but also to a powerful message about the priorities of the European Commission.

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[129] European Commission. (2021, July 8*). Statement by Executive Vice-President Vestager on the Commission decision to fine car manufacturers €875 million for restricting competition in emission cleaning for new diesel passenger cars* [Press release].

[130] Quote from the advertisement: "Passat Blue TDI: one of the most environmentally friendly diesel cars in the world".

[131]European Commission. (2019, April 5). Antitrust: Commission sends Statement of Objections to BMW, Daimler and VW for restricting competition on emission cleaning technology [Press release].

3.2.3 An alternative pathway

The Dutch NCA has been a pioneer in assessing the environmental impact in the competition framework. As seen previously, the Report by the Dutch and Greek NCAs have provided a pathway for including environmental effects through the cost-benefit analysis. Also, the Dutch Guidelines on sustainability agreements together with the Guidelines on sustainability claims, have given more room to this topic in competitive assessments.

In particular, in the rules included in the Guidelines on sustainability claims, one of them specifies the need to be honest and specific about the sustainability efforts: "Any claim about your company's sustainability ambitions must be in proportion to your actual sustainability efforts. You can only use a claim about future goals for marketing purposes if there is a clear, concrete, and verifiable strategy to realize those goals."[132] The guidelines provide an example in which an oil company claims to use a new technology that reduces carbon emissions, being better for the environment and ready to meet the carbon neutrality goals. However, the technology is only applied to 2% of the company's total fuel production. Consequently, the sustainability claims may be misleading for consumers, giving them the impression that the company's effort towards sustainability are much higher than how they actually are. With caution, this example could be compared to the Car Emissions case in which, while the five car manufacturers were aware that the NOx cleaning strategy was not exploited to its full potential, they emphasized the use of SCR systems and gave the impression of being leaders in the emission reduction of diesel passenger cars, including it also in their advertisement.

The valuation of the damage coming from the sustainability claims can be performed through the consumers' willingness to pay, which in this case is related to consumers' willingness to pay for a diesel passenger car that exploited the emission reduction system to its full potential. The contingent valuation method (CVM) has been already analysed in the previous part as a commonly used stated preference method. Through the CVM, a sample of consumers are asked through a survey to express their willingness to pay from an improvement in environmental quality, which in this case would be a higher reduction of NOx emissions. The survey should contain a description of the good to be valued in terms of attributes and benefits, and its environmental quality. The respondents are also asked about their demographic and socioeconomic characteristics, and about how much they would value the good given the opportunity to obtain it. A commonly used format for the questions is the elicitation one which describes the kind of questions that respondents will need to answer.

[132] ACM. (2021). *Guidelines Sustainability claims.* Authority for Consumers & Markets.

The forms can be various: open ended, bidding game, payment card, single-bounded dichotomous choice or double-bunded dichotomous choice. Taking for example, the open-ended form, the question would be formed as: "What is the maximum incremental amount that you would pay to purchase a diesel passenger car that reduces emissions to its full potential?". Obviously, the form of the questions and the amount of information provided deeply influences the responds, leading to errors and systematic biases: the hypothetical question can lead to an overestimation of the willingness to pay. Being aware of these limitations, the willingness to pay questionnaire still remains an important resource for calculating environmental effects and it can be supported by tools to limit these biases. The analysis of the results through the contingent valuation would go through the application of econometric techniques to identify the mean or median willingness to pay and its determinants, and then to aggregate these to obtain a figure of the total population. In the case of open-ended responses, the determinants can be estimated by a bid function that considers both demographic and socioeconomic characteristics of consumers.

However, also in this process it is possible to meet restrictions. First, if the group chosen for the analysis does not fully represent the consumer population, systematic biases can arise, but these can be limited by using demographic and socioeconomic information about both the group and the whole population. Second, there could be random deviations between the parameters of the group and the uncertain parameters of the population. For this reason, it is crucial to report through statistical data the reliability of the results obtained[133]. Once the mean or median willingness to pay is obtained, this value is multiplied by the number of households in the population, finding the population total figure. In the case of the diesel passenger cars, the population would be represented by the customers of the five firms diesel passenger car with SCR system in the EEA between the period of the infringement, from 2006 to 2014. The value resulting from this process would have represented the opportunity cost emerging from denying consumers the opportunity to opt for a more sustainable option. However, this analysis of consumer welfare is individualistic, ignoring the effect of consumers' willingness to pay on other consumers.

In environmental economics, it has been showed that a singular consumption choice can alter the consumption of other individuals, which affects the presence of externalities. For this purpose, a distinction needs to be made between the individual and collective consumer welfare analysis. The collective analysis takes into consideration the fact that when it comes to environmental effects, consumers' welfare is affected by externalities caused by the behaviour of other actors. In particular, when a wide number of consumers change their consumption in favour of a more environmentally

[133] European Commission. (2022). Incorporating Sustainability into an Effects-Analysis of Horizontal Agreements

friendly product, the incremental consumer welfare can be measured. This procedure belongs to the use of cost-benefit analysis for public goods.

However, by comparing the case of consumer welfare and public goods it is clear that some limitations are present: competition assessments do not usually take into consideration the consumption of consumers outside of the relevant market or the related distributive effects. When moving to a collective analysis, the method adopted for the Car Emissions case through elicited preferences might find some difficulties: respondents should be asked the maximum price they are willing to pay knowing that other consumers would also make the same choice and how their answer would vary if being aware that neither they nor the other consumers would choose the passenger car that exploits the SCR system to its full potential. The resulting willingness to pay may deeply differ from the one estimated through the individualistic analysis. The aggregation of the results would lead to calculate the incremental consumer welfare. Thus, collective analysis has consequences on the choices available on the market depending on the value of the willingness to pay of other consumers. The resulting value could be sufficient or not high enough, determining whether the single consumer has access to its preferred product or not. This situation is typical in standardization agreements where agreements can reduce choices in the market. For this reason, basing a competitive assessment on a collective consumer analysis should be backed up by a clear decision on to which extent the preferences of other consumers should be considered. In addition, when the preferences of consumers with a low interest in purchasing the more sustainable product has the same weight as the ones expressed by consumers with a higher demand, distributional issues may arise since the first group will not be affected by the overall costs as much as the second group. These distributional concerns are not typically addressed by competition law, showing a difference in using the cost-benefit analysis in the assessment of a public good.

Consequently, a different approach might be taken. When the environmental effects are diffused, affecting a wide population, the method mentioned does not fully take into account their value. Going back to the analysed case, the environmental impact produces a cost not only for the relevant market, but for the society as a whole. In fact, the calculation of the reduction of NOx emissions that would have happened if the SCR system would have been totally exploited, is a measure of the environmental damage coming from this lost benefit. Such externalities needs to be studied in the optic of the previously mentioned methods. For example, the dose-response one could be suitable for calculating the externality coming from the exposure to NOx emissions from diesel passenger cars which could have been avoided by fully exploiting the SCR system. This exposure obviously has implications for health and mortality rates. The advantage of this method is the possibility to rely on

existing estimates which are objective measures of the impact of the related environmental damage and make the analysis more reliable.

In the case analysed, it would be helpful to obtain estimates about the total NOx emissions coming from the diesel passenger cars produced by the five firms with a limited used of the SCR system, with the total emissions coming from the full exploitation of such system. The incremental NOx emitted coming from the difference between these two would represent the environmental damage caused by the collusion.

The measurement of the NOx emissions in relation to impacts on health has already been made through different studies in occasion of the Dieselgate scandal of 2015. In 2015 the Volkswagen group declared to use devices to lower emissions during the vehicle testing made to comply with the Euro 5 normative. Beside the competitive assessment, much research joined the debate over this case to estimate the emissions caused by Volkswagen between 2008 and 2015. In particular, in a research published by Chossier et al.[134] the measurement of the excess emissions has been calculated through the difference between the actual vehicle NOx emissions and the limit set by the European Emission Standard which corresponded to 0.18 g km_1. For future emissions, the impact has been estimated by assuming that by the end of 2016 all VW vehicles would have been modified to respect the Euro 5 standards, while also estimating the counterfactual circumstance in which the vehicles emissions would have not been reduced to fulfil such standards. The emissions in excess were measured by taking into account on-road testing of the VW model, the number of cars involved and the kilometres covered, and by inferring their spatial distribution from the one of passenger cars' NOx emissions. The identification of the affected vehicles in Germany was built by consulting public sources on cars produced by Volkswagen that used the specific engine object of the manipulation. The vehicles kilometres travelled (VKT) was used as an estimated of the total activity of the vehicles in each year. The estimation was then performed through a measurement of the atmospheric impact of the emissions in Germany and in other European countries by relating the emissions to concentrations of pollutant. The conversion of this data to metrics that express the impact on health was applied through dose-response functions that linked the concentration to public health outcomes. Finally, these outcomes were monetized by using the Value of Statistical Life and the Value of Life Year Approach. The results showed a cost of 1.9 billion euro for life-years lost. This research is a clear example of how an assessment of environmental impacts can be made and can be used as a useful tool for competition authorities.

[134] Chossière, G.P. et al. (2017, March 3). Public health impacts of excess NOx emissions from Volkswagen diesel passenger vehicles in Germany. *Environmental Research Letters*, 12(3).

By considering such environmental damage, another fundamental principle in the European legal framework would have been applied: the polluter pays principle enlightened in the previously mentioned Article 191(2) of the TFEU. However, the criteria of compensation of consumers in the relevant market does not give room for agreements that have an effect on society. The neglect of the environmental aspect in this assessment based on a strict implementation of competition law, has incremented the already existing gap towards sustainable development.

It is important to clarify that competition authorities should not set environmental standards, in that case their scope would go beyond its boundaries, since such role belongs to legislators. Nevertheless, when environmental standards are set at a lower level with respect to the possible outcome of current technologies available, competition concerns may be present[135].

[135] Nowag, J. (November 1, 2019). Competition Law's Sustainability Gap? Tools for an Examination and a Brief Overview. *Lund University Legal Research Paper Series.*

IV PART – THE REVISION OF HORIZONTAL AGREEMENTS AND POSSIBLE SOLUTIONS

4.1 The revision of horizontal agreements

On 1st March 2022, the European Commission published the draft of the new "Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal cooperation agreements". The draft, expected to enter in force by January 2023, provides a revision of the exemption on research and development agreements and specialization agreements, and it introduces the concept of sustainability agreements. In the explanatory note published by the European Commission, the objectives of the revision are set: facilitating cooperation in R&D and production areas by expanding the scope of specialization agreements and providing new guidance on their application; ensuring protection of competition by allowing agreements that pursue a specific goal even if the consequences in terms of new processes and technologies are still not set if there are sufficient and comparable efforts in the R&D field; introducing a whole chapter dedicated to sustainability agreements; and helping NCAs and EC supervision by providing an updated and complete guide on the assessment of horizontal agreements. In this dissertation, the focus will be set on the new chapter of horizontal agreements with sustainability objectives.

These changes are indispensable for the green transition and are part of the competition policies' commitment to support the European green ambition expressed in the Green Deal. In 2020 the Vice-president Margrethe Vestager launched a debate on how competition law could work in support of sustainable development and hosted a conference in February 2021 encouraging a debate on the same topic. These initiatives were parallel to the work of revision of competition rules, such as the guidelines on horizontal agreements. In response, around 200 contributions were received by competition experts, environmental researchers and other stakeholders, all expressing the key role of competition policy in meeting the objectives of the Green Deal. In particular, corporates requested more clarity on the assessment of agreements considered essential for companies to pursue sustainability objectives, including phase-out agreements, R&D and production agreements and ones regarding setting standards in an industry for sustainable products or technologies. Some respondents expressed the urge to change the conditions considered for the assessment under Article 101(3), expanding the benefits to non-economic effects occurring outside the relevant market in order to include sustainability benefits. Other suggestions were to expand the concept of consumers from users of a product to society as a whole, and to take a more flexible approach to the definition of fair share

by allowing sustainability benefits to be considered even if they do not fully compensate the competitive harm. Nevertheless, consumer associations and NCAs showed their concern in broadening these concepts, claiming that it could have a negative impact on consumers and innovation. Finally, respondents suggested to have both general and specific guidelines to assess agreements also on a case-by-case basis[136].

In response to these suggestions, the Commission acknowledged the need to provide more guidance on the compliance of agreements with competition rules and included this urge in the revision of the guidelines on horizontal agreements. Starting from the definition of sustainable development, the new guidelines legitimate competition intervention on sustainability agreements due to the existence of market failures and recognize the complementary role of competition law with regulation to foster sustainable markets. Sustainability agreements are defined as horizontal agreements that pursues sustainability goals, meaning that they are not a distinctive kind of cooperation agreement. Hence, they can assume different forms, such as production agreements, R&D agreements, etc. As other horizontal agreements, sustainability agreements raise competition concerns if they infringe Article 101(1) and do not fall within the conditions set by Article 101(3). More precisely, agreements that concern the corporate conduct without influencing the economic activities of firms, do not raise competition concerns, falling outside Article 101(1). Examples mentioned are agreements to eliminate single-use plastics from firms business operations, to create databases containing information about suppliers' sustainable value chains, and to organize environmental awareness campaigns for firms in a particular sector or for consumers. Instead, the assessment under Article 101(1) will be performed according to the nature of the agreement: cooperation to produce a new technology that reduces energy waste is going to be assessed under the principles of R&D agreements, a shared infrastructure to reduce polluting emissions is going to be assessed under the principles of production agreements, etc. What distinguishes sustainability agreements is the objective pursued by the undertakings, which is going to be considered in the assessment of its effect on competition.

In this regard, the guidelines provide the analysis of sustainability standardization agreements, which are similar to the general standardization agreements but have atypical features given by their objective. Sustainability standardization agreements require participants to agree on the adoption of a particular standard, changing the rules and dynamics of a market and resulting in the phase out less environmentally friendly products or processes to substitute them with new ones that respect more the environment or in the change of requirements for suppliers and purchase only inputs that respect environmental standards. What differentiates them are the consequences of adopting environmental

[136] European Commission. (2021, September). *Competition policy brief*. ISBN: 978-92-76-41099-7.

objectives: higher production and distribution costs, higher prices for consumers, new logos or labels that represent the respect of the standards, performance-based targets that give freedom in the choice of the technology and process adopted and that do not necessarily imply interoperability between the different participants. These particular characteristics raise competition concerns since they could cause restrictions to competition by object or through restrictive effects. In particular, the guidelines examinate three circumstances in which this may happen: price coordination, foreclosure of alternative standards, and the exclusion of, or discrimination against certain competitors[137]. In the assessment of general standardization agreements, it is observed how a collusive conduct can result from the control on production and on prices that result from the standards, limiting innovation through alternatives technologies and free access to the market.

Sustainability agreements can restrict competition by object by using the increase in environmental efficiency to hinder a gain in profit through increase sale prices or to pressure third parties to only purchase products that comply with the standards. Moreover, the new guidelines provides a "soft safe harbour" for standardization agreements that do not produce negative effects on competition if the procedure for developing the standard is transparent and it does not discriminate certain market participants, if it does not put pressure on all market participants to adopt the standard, if it does not require undertakings to exchange sensitive information that are not useful for the agreement, if it avoids a significant increase in market price or reduction in product differentiation, and if the undertakings actually respect the requirements of the standard. In order to assess if the agreement violates this conditions, it is crucial to consider the market coverage of the products subject to the new standard. In fact, if there are already alternatives with sustainability labels and standards, the agreement will not distort competition.

The exemption under Article 101(3) is possible if the agreement satisfies the cumulative conditions. The first condition requires the agreement to result in efficiency gains that go beyond cost reductions and involve innovation, quality and progress. The guidelines here delve into the possible efficiency gains resulting from sustainability agreements, considering more resilient supply chains and infrastructures, less polluting production and distribution processes, and higher product quality. These benefits need to be proven by the undertakings through an estimation that is verifiable and objective, using as example the Commission Recommendation (EU) 2021/2279 of 15 December 2021 on the use of Environmental Footprint methods to measure the environmental performance of products and

[137] European Commission. (2022, April 19). Approval of the content of a draft for a Communication from the Commission – Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements. *Official Journal of the European Communities*, 164, 1.

organisations. The second condition requires consumers to receive a fair share of the benefits. The guidelines define consumers as direct and indirect users of the product subject to the agreement, from producers to final consumers. The fair share is represented as a benefit that at least balances off the damages caused by the agreement, which can be characterized by a use and a non-use value. Use value benefits derive from the direct consumption of the product, improving consumers' individual use experience. These are mostly qualitative benefits that balance quantitative negative effects like price increases: increased longevity of products due to the new material used or better taste of agricultural goods due to the use of organic fertilizers. However, it is also possible that the benefits concerns a reduction in sale price due to a reduction of production and distribution costs, like agreements that require shared infrastructures. Non-use value benefits resulting from consumers knowing that their consumption of a more sustainable product is also going to positively affect others also outside the relevant market, without necessarily improving their direct use, like using a washing liquid that does not contaminate water. These benefits can be valued through measuring consumers' willingness to pay, since they may be willing to pay a higher price for the benefit on a wider group. Another kind of benefit that can originate from sustainability agreements is collective benefits, where the internalization of negative externalities by undertakings leads to positive effects on society. The guidelines claim that the effects that affect individuals outside the relevant market can be considered always given that consumers in the relevant market are part of this group. An example is the positive effect of cleaner air coming from an agreement between fuel producers that implies the use of less polluting inputs. The valuation of collective benefits is based on reports made by third parties, whether they are authorities or certified organizations. The third condition regards the indispensability of the agreement to reach the sustainability benefits pursued, which cannot be obtained through other agreements that have less restrictive effects. In those cases, the cooperation of participants in the market leads to reach the goals in a more cost-efficient way, avoiding market failures: the first-mover disadvantage can be reduced by avoiding free-riders through cooperation, asymmetry of information in the market can be reduced for consumers by showing them the future benefits obtained through the agreement that balance the immediate increase in prices. Agreements can also lead to economies of scale which help reducing in the long-term the higher costs coming from the new technologies adopted. The fourth condition is the absence of restricting competition for a substantial quote of the market in question. This does not mean that the agreement should respect the requirements of Article 101(1), but that the restrictive effects are still limited. For example, an agreement may restrict price competition but ensure competition on product variety or an agreement may have restrictive effects only for a limited period of time.

Through this revision, the Commission recognizes that sustainability agreements are a priority for EU policies. This surely represents a step forward in the affirmation of principles of sustainable development, recognizing that cooperation can reach sustainability goals more efficiently by overcoming market failures both on the supply and demand-side, recognizing negative externalities like polluting emissions that are not included in product prices and claiming that: "An agreement may also be necessary in cases where the parties can show that the consumers in the relevant market find it difficult, due to, for example, lack of sufficient knowledge or information about the product itself or the consequences of its use, to objectively balance the future benefits they obtain from an agreement, against the immediate harm they suffer from the same agreement and that, as a result, they overestimate the importance of the immediate effect. For example, consumers may not be able to appreciate future benefits in the form of improved quality and innovation, if the immediate effect is a price increase of the product."[138] The new guidelines clarify that to the inclusion of environmental benefits, they can be included in the conditions under Article 101(3) by assessing them as qualitative efficiencies as long as they are appreciated by the consumers of the product considered who are willing to pay a higher price. Furthermore, benefits relating to separate markets have the possibility to be taken into account if consumers of the relevant market are fully compensated by them from the harm caused. This can be interpreted as a compromise between the urge to include sustainability matters and the respect of the consumer welfare mandate in competition law. In fact, the compensation for consumers does not concern only consumers in the relevant market if they are still affected by benefits occurring outside such market, including possible non-use and collective benefits in the competitive assessment.

However, the revision does not include a guide on how to determine collective benefits, also leaving out cases in which agreements are formed to overcome national laws that are not adequate to protect the environment, and global collective benefits. The conditions of exemption are still strict, hindering the efforts required to face the climate crisis. The conditions of Article 101(3) that require the agreements to not be more restrictive than necessary exclude cases in which even if there are no market failures to solve or legal requirements to fulfil, the positive effects of an agreement on the environment would be quicker and more efficient than competition on its own. Even if the guidelines recognize the possibility of benefits regarding other markets to be included, the notion of fair share adopted not only restricts the potential of the effects of sustainability agreements, but it is also groundless with respect to Article 101(3) itself which, as seen before, does not require consumers in

[138] Ibidem, para 586.

the relevant market to be fully compensated[139]. Also, the previous CECED case show that there is no real impediment for the Commission to take a less strict approach like the one adopted before 2004. Hence, the new guidelines do not fully represent the changed needed by the European Commission, still presenting gaps. An example is the absence of agreements that have benefits only outside the EU region, giving the impression that as long as the harm does not concern citizens of the European Union, environmental damage caused by private economic actors is allowed[140]. Surely, the aim of the revision is to encourage sustainability initiatives by clarifying the competition rules, but the main focus is always ensuring consumer welfare, the heart of competition law's mandate.

4.2 The way forward

Overall, the introduction of a chapter dedicated to sustainability agreements signals a necessary step towards sustainable development by the Commission, providing guidance for different circumstances in which competition law and environmental effects interact. The Covid-19 pandemic showed that policy makers have the resources and competences to quickly adapt to socio-economic changes when there is urgency. In particular, the Commission had no hesitation to help businesses by referring to the old cooperation scheme abandoned sixteen years ago in favour of Regulation 1/2003 in order to reassure them to not get caught in an infringement of competition law when supporting each other during such critical time[141]. This approach should be transposed in the sustainability field to tackle climate change in a quick and responsive way, given the urgency of it. However, the interpretation of fair share under Article 101(3) is still strict, showing that the competition authority is still tied to the narrow interpretation of the scope of competition law.

There are several suggestions that can be made for competition authorities to enhance sustainability. One option, which is the one contemplated in the analysis of the Car Emissions case, could be to give a stricter application of Article 101(1) to agreements that harm sustainability in the process of harming competition and to not include environmental damages in the harm to innovation. This approach would result in including in the fining guidelines the assessment of environmental damages, which is currently not present: the proxy for the fining guidelines is the value of sales related to the duration of an infringement. The guidelines have already been considered inappropriate by the Commission

[139] ClientEarth, & Holmes, S. (2021, October). Horizontal agreements between companies – revision of EU competition rules. *ClientEarth*.

[140] Cibrario Assereto, C., Dolmans, M., & Maciariello, E. (2022, March 23). *New EU Guidelines for Horizontal Agreements: A Changing Climate for Sustainability Cooperation?* Oxford Law Faculty.

[141] Beetstra, T., & Kuipers, P. (2020, December 15). *Outlook: Sustainability and competition law in 2021*. Bird & Bird.

itself, which in different cases deviated from the value of sales to calculate fines, especially in the financial sector[142]. Therefore, the repeated deviation raises questions over the obsolescence of the current guidelines, released in 2006 when the socio-economic framework was much different from now. This limit was also seen in the Car Emissions case, where the value of sales did not fully represent the damage coming from avoiding exploiting a system that reduced emissions to its full potential, leaving unanswered the question about the calculation of a fine that considered the value of more environmentally friendly products that where never sold in the market.

Another possibility is to integrate the pioneering work done by the Dutch competition authority in measuring the environmental impact of horizontal agreements, to include it in the exemptions of Article 101(3). The concerns raised about the cost of such assessment are unfounded: the burden of proving that an agreements satisfies the conditions of Article 101(3) belongs to the parties aiming at benefiting from the exemption. However, the necessity of a benefit on consumers threatens the relevancy of a collective environmental benefit: according to the guidelines collective benefits can be taken into account only if there is also a benefit in the relevant market. As a consequence, there would be a need for a re-interpretation of the article so that it considers benefits regardless of the markets reached, eliminating the need for individuals that have suffered from competitive harm to be included and therefore, revising the notion of fair share to consumers.

A more extreme approach might be taken by considering some agreements that have anticompetitive effects as lawful, regardless of falling under the Article 101(3) exemptions, due to their importance in reaching sustainable development. This possibility is founded on Article 11 which, as already mentioned before, it is part of the framework that justifies the inference of environmental protection in competition law. This principle seems to being already full in place for the decisions of the European Court of Justice (ECJ) which, in the Wouters case, it claimed that agreements necessary to pursue a legitimate goal may not fall under Article 101(1) even if they restrict the independence of the parties. The case dealt with a regulation set by the Bar of the Netherlands to prohibit partnerships between lawyers and accountants in the view of an association that could restrict competition. According to the Court, this kind of association could fall outside Article 101(1) due to its necessary objective: an efficient practice of the legal profession. The same approach was taken in the Albany case where the ECJ concluded that collective bargaining agreements that have restrictive effects on competition may be exempted due to their nature and purpose, which in that particular case was a

[142] Camesasca, P. (2019, September 2). *The EU Commission's cartel fining challenges: a need to "re-fine" the method?* Covington Competition.

higher remuneration for employees. More precisely, the ECJ claimed that "the social policy objectives pursued by [collective] agreements would be seriously undermined if management and labour were subject to Article 85(1) of the Treaty when seeking to adopt measures to improve conditions of work and employment".[143] Even if in both cases the ECJ does not clarify what objectives can be considered as legitimate, it is clear that they do not necessarily need to be economic.[144] It comes naturally to look at sustainability agreements from the same perspective, given their legitimate objective. However, in that case the interpretation is much stronger, using it as a reference for environmental effects to override anticompetitive harm.

It is possible to conclude that the revision of the Horizontal Guidelines did not fully consider these options. Surely, the introduction of a chapter dedicated to sustainability agreements is a step towards covering the gap, but it is not enough. In fact, without the inclusion of environmental effects in consumer welfare analysis, sustainability will not be fostered by competition law. This inclusion would not threaten the purity of competition authorities mandate, since it is clear the environment is a crucial element for the well-being of consumers and society as a whole and needs to be included in the priorities of competition authorities. The analysis of the EU Treaties show that the law does not needs to change. What it is urgent to enhance this process is a reinterpretation of the normative, asking what the goals of European competition law should be. Without questioning the normative paradigm, the sustainability gap will never be completely solved. By quoting the words of the Commissioner Vestager: "We've made a commitment to sustainability; but we're still working out exactly what has to change, to make that promise a reality. [...] Every one of us – including competition enforcers – will be called on to make our contribution to that change."[145]

[143] Albany International BV v Stichting Bedrijfspensioenfonds Textielindustrie. Judgement of the Court, 1999, C-67/96 ECR 1999.

[144] Janssen, C., & Kloosterhuis, E. (2016). The Wouters case law, special for a different reason? *Thomson Reuters (Professional) UK Limited and Contributors*, 37(8).

[145] European Commission. (2019, October 24). *Commissioner Margrethe Vestager, GCLC Conference on Sustainability and Competition Policy, Brussels,* [Press release].

V – EXECUTIVE SUMMARY

The aim of this dissertation is to investigate the relationship between European competition law and sustainability from the perspective of horizontal agreements. The comparison between the current "Guidelines on Horizontal Cooperation Agreements" and their revision, expected to enter in force by January 2023, gives a clear picture of how the European Commission is facing the objectives imposed by the 2030 Agenda, exposing the efforts put in the revision and the limits still to overcome. In particular, the analysis of the Car Emissions case is functional to understand how the current resources and methods available could be helpful to integrate environmental effects in competitive assessments performed by the EC.

Starting from the historical rise of environmental awareness, the first part identifies key steps and concepts in the sustainability field. Foremost is the definition of sustainable development as introduced in 1987 by the Our Common Future report: "a development that meets the needs of the present without compromising the ability of future generations to meet their own needs".[146] This definition can be considered the cornerstone of the social, environmental and economic initiatives of the last two decades. In this regard, the 2030 Agenda constitutes a global roadmap to reach sustainable development by 2030, setting seventeen goals (SDGs) aiming at economic stability, social equity and environmental protection. These goals had a major influence on the development of national policies with 70% of countries orientating policies towards the SDGs[147], but also on the business strategies of the private sector being more focused on sustainability.

Given the growing importance of environmental policies, a reflection is made on the role of regulation and on how competition law can be a complementary tool. Since the institution of the European Union, environmental regulation has endured different changes, either through internal developments or multilateral agreements. In particular, at its early stages environmental regulation went hand in hand with the evolution of the EU, being considered in the EEC/EU Treaties, and then it reached autonomy with the 1973 Environmental Action Programme which marked "the starting point of common EU environmental policy"[148]. One of the most recent landmark in environmental legislation is the European Green Deal, launched by the EC in 2019. This regulation not only constitutes a

[146] World Commission on Environment and Development. (1987). *Our common future*. Oxford University Press. p.43

[147] OECD/UNDP (2019), M OECD/UNDP. (2019). *Making Development Co-operation More Effective: 2019 Progress Report*. OECD Publishing.

[148] Orlando, E. (2013, April). The Evolution of EU Policy and Law in the Environmental Field: Achievements and Current Challenges.

roadmap for European climate policies to reach carbon neutrality by 2050, but it also marks the peak of the fifty years of the European commitment in the environmental field. Another important regulation system that goes in the same direction of the Green Deal is the European Taxonomy. The Taxonomy sets several environmental objectives that economic activities have to meet in order to be defined sustainable, creating a common language to determine whether economic activities comply or not with sustainability goals.

Despite the crucial efforts in the EU legislation to strengthen environmental protection, there are still gaps to be filled due to the broadness of legislative instruments. The main problems derive from the lack of coordination and compliance which are highly needed in the implementation of regulative measures. More precisely, economic actors may find challenging to comply with regulations that require structural changes to their business activity and therefore, prefer to not face these changes due to the lack of economic incentives or adequate penalties. The slowness of regulation should also be considered, since it can lead to inadequate measures as in the case of the current EU emission trading scheme which only contrasts 41% of EU's total emissions, a percentage that won't help to reach carbon neutrality.

The gaps found in regulation constitute a getaway for competition law to act in a complementary role, as recognized by the Commission itself: "the impact of regulations pushing for more sustainable objectives in the markets analysed will be reflected in the competitive assessment."[149] However, the inclusion of the theme of sustainability into competition law has generated a strong debate. There is in fact, scepticism over the ability of competition to foster sustainability, wondering if the scope of competition law should diverge from consumer welfare[150]. Another important object of debate is the legal framework, since each jurisdiction might have a different approach depending on the legal constraints. On the other hand, supranational and international law has had a strong impact in including environmental concerns in competitive assessments. In the case of the European Union, Article 11 of the Treaty on the functioning of the European Union claims that "Environmental protection requirements must be integrated into the definition and implementation of the Union's policies and activities, in particular with a view to promoting sustainable development". These requirements can be extended to competition law, being conceived as part of EU's policies[151].

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[149] Badea, A. et al. (2021). Competition Policy in Support of Europe's Green Ambition. *European Commission Competition Policy Brief.*

[150] Claasen, R. & Gerbrandy, A. (2016). Rethinking European Competition Law: From a Consumer Welfare to a Capability Approach. *Utrecht Law Review*, (2)1, 1-15.

[151] Nowag, J. (November 1, 2019). Competition Law's Sustainability Gap? Tools for an Examination and a Brief Overview. *Lund University Legal Research Paper Series.*

The second section of this dissertation leverages economic theories to analyse more clearly the dynamics and interactions between competition and sustainability. The observation of market forces from an economic point of view can help understanding the differences in applying regulation or competition, and the dynamics between competition and cooperation in the sustainability field. Overall, the analysis of environmental effects through economic theories highlights that the market does not always lead to the most sustainable outcome due to the presence of market failures both in the supply and demand sides. The assessment of environmental quality through economic theory highlights various crucial questions that rise from considering sustainability initiatives in competition law. First, if competition authorities should consider environmental effects in the assessment of a certain market. Second, which individuals should be included in the consideration of consumers' welfare. Third, which timeframe should be adopted, given the particular long-term feature of environmental effects. Fourth, if environmental effects should be balanced with other effects in the market. Finally, the most important question relates to the possibility of expressing environmental effects in monetary terms.

These question have been addressed individually by consulting EU Treaties and the Technical Report by the Netherlands Authority for Consumers and Markets and the Hellenic Competition Commission. First, the valuation of the effects that need to be considered can be challenging since there is a common belief that the traditional competitive assessment framework should only consider short-term price effects, supporting the "purity" of competition law. At the root of this debate is definition of "consumer welfare", core objective of the competition policy framework. The broad meaning of welfare together with the absence of legal basis for the exclusive consideration of an economic welfare, demonstrate that in the EU law there is no mention of adopting a narrow consumer welfare test.

The second question regards the definition of consumers and the identification of relevant markets. In fact, the environmental benefits or damages may also apply to individuals considered outside the traditional relevant market, strictly related to product and geographic characteristics. On one hand, some believe that including consumers outside the market clashes with the nature of competition law, burdening competition authorities with issues beyond their mandate[152]. On the other hand, it has been recognized that environmental effects are a stand-alone issue that have to do with the entire society and cannot be treated as traditional competition matters[153]. The concept of fairness can be interpreted

[152] Peeperkorn, L. (November, 2020). Competition and sustainability: What can competition policy do. *Concurrences*, 4, 26-65. Veljanovski, C. (2021). Collusion as Environmental Protection - An Economic Assessment. *Journal of Competition Law & Economics*.

[153] Holmes, S. (2020). Climate change, sustainability, and competition law. *Journal of Antitrust Enforcement*, 8(2), 354-405.

based on the case in which it applies[154]: in the case of air pollution, a consumer receives a fair share coming from the benefit of the reduction of emissions when the entire group to which it belongs benefits from it, meaning that the impact is strong enough to affect a large area or group. Consequently, it is possible for competition authorities to use a broad definition of consumers when it comes to environmental effects.

Third, the particular time scale of environmental goods and services makes the time dimension a critical element for the outcome of competition assessments. The resulting benefits or costs for society are hardly measurable in the short-term which is more able to capture direct price effects. For example, the impact of economic activities that cause deforestation and loss of biodiversity could be noted after years. Despite the difficulty that this kind of approach can bring, it is impossible to ignore the fact that environmental benefits or costs will have an impact on future consumers.

Fourth, one of the biggest challenges in the competitive assessment of environmental benefits is balancing them with other effects like the price. In cases where the balancing process necessarily needs to be quantitative, measurement techniques such as environmental prices or willing-to-pay studies may be useful.

Finally, the expression of environmental effects in monetary firms is based on the concept of total economic value (TEV). The TEV contains all the factors that contribute to an improvement of humans well-being from an environmental perspective. The TEV is mostly measured by valuation techniques that measure its change over a period of time, mostly through the cost-benefit analysis (CBA). The cost-benefit analysis enables to consider the environmental impact on an entire ecosystem instead of a single group of individuals. The basic principle of the CBA is the comparison between the costs and the benefits of certain project in a common measurement unit, which corresponds to monetary values, and the adoption of a discounting process that determines the future effects. With regards to the application of the cost-benefit analysis, the report by the Dutch and Greek competition authorities provides different methods to quantify environmental impacts in the competitive assessment, as it can be seen in the table.

[154] Dolmans, M. (2020). Sustainable Competition Policy. *Competition Law & Policy Debate*, 5(6)/4(1), 4-23.

Table 6 From 2.3.2 Methods for environmental valuation

Methods for environmental valuation using case-specific data	
Methods based on market choices (potentially in surrogate markets)	Example: Hedonic prices derived from surrogate markets
Methods based on hypothetical choices or stated preferences	Example: Contingent valuation analysis based on surveys of stated preferences over hypothetical scenarios
Valuation methods for estimating and aggregating case-specific impact	
Averting and defensive behaviour	Example: Estimating avoided costs of defensive expenditures
Valuation using data from existing studies and databases	
Environmental prices databases	Example: Using environmental prices aggregating all health-related costs from the emission of a particular substance in a specific country
Valuation derived from stated policy objectives	
Using market prices for permits or taxes on emissions	Example: CO2 prices from the EU Emissions Trading System

On one hand, there are the revealed preference methods, based on the knowledge that environmental goods that do not belong to a specific market are still traded implicitly in surrogate markets, and therefore have an implicit price. Examples of revealed preference methods are the hedonic pricing, the averting behaviour and defensive expenditure, and dose-response methods. On the other hand, stated preference methods study people's behaviour in hypothetical markets. The contingent valuation method (CVM) is the most popular in the environmental field. Finally, valuation methods also derive from stated policy objectives, since the implementation of market-based policies by a regulatory authority generates an implicit price (a shadow cost) for the environmental good regulated. An example is the EU Emissions Trading System, which estimate a maximum amount of greenhouse gas emissions authorized and gives the permits to emit said amount to companies. The social cost of carbon (SSC) is a key tool to include environmental effects in the cost-benefit analysis of public policies, representing the present cost in social welfare of emitting an additional unit of carbon. These considerations lead to the conclusion that the inclusion of environmental effects in the competition framework is allowed by EU Treaties, it does not change the scope of competition, and there are already different methods available to quantify them, there is no point for competitive authorities to be bound to a strict concept of consumer welfare.

The third section restricts the focus from generic competition law to the current "Guidelines on Horizontal Agreements", analysing cases in which environmental protection and competition law are compatible or in which they instead clash, and adopting the Car Emission as a case study to define the sustainability gaps in the current normative. Given the legal framework provided by Article 101 of the TFEU, it is possible to identify situations in which competition authorities intervene to prohibit agreements that may be harmful to the environment, and situations instead in which competition provisions allow sustainability measures to be implemented. In both cases, the integration process can take two forms depending on the existence of a conflict or not between sustainability and competition law: the simultaneous achievement of environmental quality and competition without any conflict or the need to balance these two elements according to the boundaries set by the competitive framework.

In the preventative integration form, competition law represents a tool to prevent environmental damages or to increase the quality of a certain market in terms of sustainability. This is the case of greenwashing cartels: agreements through which firms make sustainability claims to mask their anticompetitive objectives. However, in many cases where the intervention of competition authorities led to an increase in sustainability, the main objective was to protect and pursue innovation. In the supportive integration form cooperation is allowed for its support to sustainability, shielding it from competition authorities' prohibitions. It is important to say that there is limited room for such cases in the current normative. In particular, when the exemptions of Article 101(3) are crucial for the competitive assessment, the possibilities of integration considered above are insufficient and the benefits cannot be interpreted as qualitative benefits for the consumers, leaving the definition of consumers and of the related benefits still unclear. In order to clarify this last concept, the current guidelines on the applicability of Article 101 of the TFEU to horizontal agreements are analysed. With regards to environmental agreements, there is no mention of them, removing a dedicated chapter present in the previous guidelines and leaving covered only the case of standardization agreements.

From this analysis the picture of the current European competition law framework that emerges presents a gap that seems to hinder sustainability initiatives. The main problems with the current normative, as summarized in the table above, are the lack of attention towards environmental agreements and the overlook of market failures in the competitive assessments. The Commission did not always take this approach, explaining in the 2001 guidelines that under Article 101(3) the "net contribution to the improvement of the environmental situation overall."[155] would have been

[155]European Commission. (2001). Commission Notice—Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements. *Official Journal of the European Communities*,3,2, chapter 7.

considered. However, from 2004 the Commission adopted a stricter approach to the guidelines, considering a narrow view of consumes in the analysis of their welfare and limiting the role of non-economic factors. Furthermore, a considerable gap can be found in promoting sustainability by competition law through targeting undertakings that assume behaviours that threaten sustainability. In particular, sustainability concerns are mainly tackled through the assessment of other harmful behaviours, such as preventing innovation[156], due to the existence of a dividing line between competition law and environmental law by which the scopes are different and separated. An example of this phenomenon is the assessment of the European Commission of the Car Emissions case, a recent case assessed by the European Commission.

Table 7 Summary of 3.1.3 Gaps in the current normative

Sustainability gaps in the current normative
Narrow consideration of consumers
Strict definition of fair share of benefits
Limited consideration of non-economic effects
Sustainability concerns included in the assessment of innovation effects
Absence of techniques to measure environmental effects
Lack of attention towards environmental agreements

The choice of analysing a single case study is motivated by the complete and exhaustive example provided by the Car Emissions case, exposing how environmental effects are not fully considered by the Commission, despite their relevance. In order to conduct this analysis, data has been collected through official documents of the European Commission and assessments by experts in the sector (reports, articles, interviews, company statements). Finally, a personal contribution on the case is supported by methods provided by the Report of the Dutch and Greek competitive authorities - contingent valuation and the calculation of environmental impacts as performed through a dose-response function – and by the research performed by Chossière et al. on the impacts on public health caused by excess NOx emissions from Volkswagen diesel passenger cars in Germany.

The Car Emissions case concerns five car manufacturers: BMW, Daimler, Volkswagen, Audi and Porsche (the last two being part of the Volkswagen group), also called the “circle of five”. According

[156] Nowag, J. (November 1, 2019). Competition Law’s Sustainability Gap? Tools for an Examination and a Brief Overview. *Lund University Legal Research Paper Series.*

to the Commission, from 2006 to 2014 the five undertakings participated in an infringement by object of the prohibition of cartel agreements in terms of product characteristics of diesel passenger cars, of technical development of NOx cleaning with SCR systems, and of consumers choice under Article 101(1)(b) of the TFEU and Article 53(1)(b) of the Agreement of the European Economic Area. In particular, the firms were aware that the NOx cleaning strategy followed by each of them in the EEA was not exploited to its full potential, going beyond the legal standards.[157] The fine imposed by the Commission was calculated according to the 2006 Guidelines on Fines by considering the relevant value of the parties' sales of diesel passenger cars with SCR systems in the EEA multiplied by the number of years or fractions of the years in which the firms participated in the infringement. The total fine imposed amounted for 875 million euros, signalling the first time that the Commission found cartel behaviour based on technical elements, as opposed to price or market share cartels. In the Commission decision there was no mention of environmental concerns coming from the five undertakings deliberately avoiding improving the reduction of emissions despite the possibility. As a consequence, the fines did not include the undermining of environmental objective, which would have led to a higher fine.

From the Commission decision, a personal contribution is made based on the already available techniques previously mentioned and on the Dutch Guidelines on Sustainability claims. In the rules included in these Guidelines, one of them specifies the need to be honest and specific about the sustainability efforts, avoiding being misleading for consumers and giving them the impression that the company's effort towards sustainability are much higher than how they actually are. With caution, this rule could be applied to the Car Emissions case in which, while the five car manufacturers were aware that the NOx cleaning strategy was not exploited to its full potential, they emphasized the use of SCR systems and gave the impression of being leaders in the emission reduction of diesel passenger cars, including it also in their advertisement.

The first approach taken in this dissertation to define the environmental damage is the contingent valuation method Through the CVM, a sample of consumers are asked through a survey to express their willingness to pay from an improvement in environmental quality, which in this case would be a higher reduction of NOx emissions. The survey should contain a description of the good to be valued in terms of attributes and benefits, and its environmental quality. The respondents are also asked about their demographic and socioeconomic characteristics, and about how much they would value the good given the opportunity to obtain it. In the case of the diesel passenger cars, the population would be

[157] The legal framework for passenger cars regarding emissions in the EEA is Directive 2007/46/EC of the European Parliament and of the Council, while the provisions on emissions standards relevant are Euro 5 (2009) and Euro 6 (2016).

represented by the customers of the five firms diesel passenger car with SCR system in the EEA between the period of the infringement, from 2006 to 2014. The value resulting from this process would have represented the opportunity cost emerging from denying consumers the opportunity to opt for a more sustainable option. However, this analysis of consumer welfare is individualistic, ignoring the effect of consumers' willingness to pay on other consumers.For this purpose, a distinction needs to be made between the individual and collective consumer welfare analysis. The collective analysis takes into consideration the fact that when it comes to environmental effects, consumers' welfare is affected by externalities caused by the behaviour of other actors. When moving to a collective analysis, the method adopted for the Car Emissions case might find some difficulties: respondents should be asked the maximum price they are willing to pay knowing that other consumers would also make the same choice and how their answer would vary if being aware that neither they nor the other consumers would choose the passenger car that exploits the SCR system to its full potential. The resulting willingness to pay may deeply differ from the one estimated through the individualistic analysis. Consequently, a different approach might be taken. For example, the dose-response one could be suitable for calculating the externality coming from the exposure to NOx emissions. The advantage of this method is the possibility to rely on existing estimates which are objective measures of the impact of the related environmental damage and make the analysis more reliable. In the case analysed, it would be helpful to obtain estimates about the total NOx emissions coming from the diesel passenger cars produced by the five firms with a limited used of the SCR system, with the total emissions coming from the full exploitation of such system. The incremental NOx emitted coming from the difference between these two would represent the environmental damage caused by the collusion.

The measurement of the NOx emissions in relation to impacts on health has already been made through different studies in occasion of the Dieselgate scandal of 2015. In particular, in a research published by Chossier et al.[158] the measurement of the excess emissions has been calculated through the difference between the actual vehicle NOx emissions and the limit set by the European Emission Standard. The emissions in excess were measured by taking into account on-road testing of the VW model, the number of cars involved and the kilometres covered, and by inferring their spatial distribution from the one of passenger cars' NOx emissions. The identification of the affected vehicles in Germany was built by consulting public sources on cars produced by Volkswagen that used the specific engine object of the manipulation. The vehicles kilometres travelled (VKT) was used as an

[158] Chossière, G.P. et al. (2017, March 3). Public health impacts of excess NOx emissions from Volkswagen diesel passenger vehicles in Germany. *Environmental Research Letters*, 12(3).

estimated of the total activity of the vehicles in each year. The estimation was then performed through a measurement of the atmospheric impact of the emissions in Germany and in other European countries by relating the emissions to concentrations of pollutant. The conversion of this data to metrics that express the impact on health was applied through dose-response functions that linked the concentration to public health outcomes. Finally, these outcomes were monetized by using the Value of Statistical Life and the Value of Life Year Approach. The results showed a cost of 1.9 billion euro for life-years lost. This research is a clear example of how an assessment of environmental impacts can be made and can be used as a useful tool for competition authorities.

In the final part, an analysis of the draft of the new "Guidelines on horizontal agreements", published by the EC in March 2022, is performed, keeping a focus on environmental matters. The revision introduces the concept of sustainability agreements, legitimating competition intervention in this field due to the existence of market failures and recognizing the complementary role of competition law with regulation to foster sustainable markets. Sustainability agreements are defined as horizontal agreements that pursues sustainability goals, meaning that they are not a distinctive kind of cooperation agreement. Hence, they can assume different forms, such as production agreements, R&D agreements, etc.

Sustainability agreements can restrict competition by object by using the increase in environmental efficiency to hinder a gain in profit through increase sale prices or to pressure third parties to only purchase products that comply with the standards. Moreover, the new guidelines provides a "soft safe harbour" for standardization agreements that do not produce negative effects on competition. In the exemption under Article 101(3) the guidelines delve into the possible efficiency gains resulting from sustainability agreements, considering more resilient supply chains and infrastructures, less polluting production and distribution processes, and higher product quality. The fair share condition is represented here as a benefit that at least balances off the damages caused by the agreement, which can be characterized by a use and a non-use value. The guidelines claim that the effects that affect individuals outside the relevant market can be considered always given that consumers in the relevant market are part of this group. Also, the third condition regards the indispensability of the agreement to reach the sustainability benefits pursued, which cannot be obtained through other agreements that have less restrictive effects.

Through this revision, the Commission recognizes that sustainability agreements are a priority for EU policies. However, the revision does not include a guide on how to determine collective benefits, also leaving out cases in which agreements are formed to overcome national laws that are not adequate to

protect the environment, and global collective benefits. The conditions of exemption are still strict, hindering the efforts required to face the climate crisis. The notion of fair share adopted not only restricts the potential of the effects of sustainability agreements, but it is also groundless with respect to Article 101(3) itself which, as seen before, does not require consumers in the relevant market to be fully compensated. Hence, the new guidelines do not fully represent the changed needed by the European Commission, still presenting gaps.

To conclude this work, several suggestions are made to reduce these gaps in the current European competition law. One option, which is the one contemplated in the analysis of the Car Emissions case, could be to give a stricter application of Article 101(1) to agreements that harm sustainability in the process of harming competition and to not include environmental damages in the harm to innovation. This approach would result in changing the fining guidelines released in 2006 when the socio-economic framework was much different from now, to include the assessment of environmental damages. Another possibility is to integrate the pioneering work done by the Dutch competition authority in measuring the environmental impact of horizontal agreements, to include it in the exemptions of Article 101(3). As a consequence, there would be a need for a re-interpretation of the article so that it considers benefits regardless of the markets reached, eliminating the need for individuals that have suffered from competitive harm to be included and therefore, revising the notion of fair share to consumers. Finally, a more extreme approach might be taken by considering some agreements that have anticompetitive effects as lawful, regardless of falling under the Article 101(3) exemptions, due to their importance in reaching sustainable development.

It is possible to conclude that the introduction of a chapter dedicated to sustainability agreements in the revision of the Horizontal Guidelines is a step towards covering the sustainability gap, but it is not enough. In fact, without the inclusion of environmental effects in consumer welfare analysis, sustainability will not be fostered by competition law. There is an urgency in a reinterpretation of the normative, asking what the goals of European competition law should be. Without questioning the normative paradigm, the sustainability gap will never be completely solved.

VI – BIBLIOGRAPHY

ACM. (2015). *ACM's analysis of the sustainability arrangements concerning the 'Chicken of Tomorrow'.* Authority for Consumers & Markets. https://www.acm.nl/sites/default/files/old_publication/publicaties/13789_analysis-chicken-of-tomorrow-acm-2015-01-26.pdf.pdf

ACM. (2020). *Draft guidelines 'Sustainability Agreements.* Authority for Consumers & Markets. https://www.acm.nl/sites/default/files/documents/2020-07/sustainability-agreements%5B1%5D.pdf.

ACM. (2021). *Guidelines Sustainability claims*. Authority for Consumers & Markets. https://www.acm.nl/sites/default/files/documents/guidelines-suistainability-claims

Agboola, A.O. (2015). Neoclassical economics and new institutional economics: An assessment of their methodological implication for property market analysis. *Property Management*, 33(5), 412-429. https://doi.org/10.1108/PM-12-2014-0055

Albany International BV v Stichting Bedrijfspensioenfonds Textielindustrie. Judgement of the Court, 1999, C-67/96 ECR 1999.

Badea, A. et al. (2021). Competition Policy in Support of Europe's Green Ambition. *European Commission Competition Policy Brief*, https://data.europa.eu/doi/10.2763/962262

Basiago, A. D. (1999). Economic, social, and environmental sustainability in development theory and urban planning practice: *The environmentalist*, 19, 145-161.

Beetstra, T., & Kuipers, P. (2020, December 15). *Outlook: Sustainability and competition law in 2021*. Bird & Bird. https://www.twobirds.com/en/insights/2020/global/sustainability-and-competition-law-in-202

Brinkhorst, L. J. (1993). The Road to Maastricht. *Ecology Law Quarterly*, 20(1), 7-23. https://www.jstor.org/stable/i24110814

Camesasca, P. (2019, September 2). *The EU Commission's cartel fining challenges: a need to "re-fine" the method?* Covington Competition. https://www.covcompetition.com/2019/09/the-eu-commissions-cartel-fining-challenges-a-need-to-re-fine-the-method/

Carson, R. (1962). *Silent spring*. Hamish Hamilton.

CE Delft. (2018). *Environmental Prices Handbook 2017: Methods and Numbers for Valuation of Environmental Impacts.* Delft, Netherlands: CE Delft. https://cedelft.eu/publications/environmental-prices-handbook-2017/

Chossière, G.P. et al. (2017, March 3). Public health impacts of excess NOx emissions from Volkswagen diesel passenger vehicles in Germany. *Environmental Research Letters*, 12(3). https://iopscience.iop.org/article/10.1088/1748-9326/aa5987

Cibrario Assereto, C., Dolmans, M., & Maciariello, E. (2022, March 23). *New EU Guidelines for Horizontal Agreements: A Changing Climate for Sustainability Cooperation?* Oxford Law Faculty. https://www.law.ox.ac.uk/business-law-blog/blog/2022/03/new-eu-guidelines-horizontal-agreements-changing-climate

Claasen, R. & Gerbrandy, A. (2016). Rethinking European Competition Law: From a Consumer Welfare to a Capability Approach. *Utrecht Law Review*, (2)1, 1-15. http://dx.doi.org/10.18352/ulr.321.

ClientEarth, & Holmes, S. (2021, October). Horizontal agreements between companies – revision of EU competition rules. *ClientEarth.* https://www.clientearth.org/media/3c4lsaex/clientearth-and-s-holmes-contribution-horizontal-agreements-04-10-2021.pdf

COM (2020) 652 final 2020/0300 (COD): Proposal for a DECISION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on a General Union Environment Action Programme to 2030. European Commission. Brussels, 14.10.2020. https://eur-lex.europa.eu/legal content/EN/TXT/?uri=CELEX%3A52020PC0652

Competition and Markets Authority. (2022, January 14). *Misleading environmental claims*. GOV.UK. https://www.gov.uk/cma-cases/misleading-environmental-claims#draft-consumer-protection-law-guidance-and-consultation

Decision FCCC/CP/2015/10/Add.1 of 29 January 2016 *Adoption of the Paris Agreement.* Conference of the Parties. https://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf

Deters, H. (2019). European environmental policy at 50: Five decades of escaping decision traps? *Environmental Policy and Governance*, 29(5), 315–325. https://doi.org/10.1002/eet.1855

Directive 96/61/EC of *24* September 1996 *Concerning integrated pollution prevention and control*. Council of the European Union. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31996L0061

Directive 2001/42/EC of 27 June 2001 on *The assessment of the effects of certain plans and programmes on the environment.* European Parliament, Council of the European Union. https://eur-lex.europa.eu/eli/dir/2001/42/oj

Directive 2003/4/EC of 28 January 2003 on *Public access to environmental information and repealing Council Directive 90/313/EEC.* European Parliament, Council of the European Union. http://data.europa.eu/eli/dir/2003/4/oj

Directive 2003/35/EC of 26 May 2003 *Providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending, with regard to public participation and access to justice*, Council Directives 97/11/EC and 96/61/EC amended by Directive 2011/92/EU. European Parliament, Council of the European Union. http://data.europa.eu/eli/dir/2003/35/oj

Directive 2004/35/CE of 21 April 2004 on *Environmental liability with regard to the prevention and remedying of environmental damage*, as amended by Directive 2006/21/EC, Directive 2009/31/EC and 2013/30/EU. European Parliament, Council of the European Union. http://data.europa.eu/eli/dir/2004/35/oj

Directive 2008/99/EC of 19 November 2008 on *The protection of the environment through criminal law.* European Parliament, Council of the European Union. http://data.europa.eu/eli/dir/2008/99/oj

Directive 2011/92/EU of 13 December 2011 on *The assessment of the effects of certain public and private projects on the environment* (consolidating and repealing Directive 85/337/EEC as amended by Council Directive 97/11/EC and by Directive 2003/35/EC) as amended by Directive 2014/52/EU. European Parliament, Council of the European Union. http://data.europa.eu/eli/dir/2011/92/oj

Dolmans, M. (2021). Sustainable Competition Policy and the "Polluter Pays" Principle. *Competition Law, Climate Change & Environmental Sustainability*, Concurrences, Paris. https://www.concurrences.com/en/livre/competition-law-climate-change-environmental-sustainability-646#id=66925

Dolmans, M. (2020). Sustainable Competition Policy. *Competition Law & Policy Debate*, 5(6)/4(1), 4-23. https://dx.doi.org/10.2139/ssrn.3608023

ECA. (2021). *Principle of EU Environmental Law, The Polluter Pays Principle* (ECA Special Report pursuant to Article 287(4), second subparagraph, TFEU.). European Union. https://doi.org/10.2865/590639

ECRAN. (2015–2016). *Handbook on the Implementation of EU Environmental Legislation*. Hulla & Co Human Dynamics. https://doi.org/10.2779/51324

Elmqvist, T. et al. (2010). Biodiversity, Ecosystems and Ecosystem Services. *The Economics of Ecosystems and Biodiversity: Ecological and Economic Foundations*, Earthscan, London.

EU Carbon Permits. Trading Economics. Retrieved April 20, 2022, from https://tradingeconomics.com/commodity/carbon

European Commission. (1997). COMMISSION NOTICE on the definition of relevant market for the purposes of Community competition law. *Official Journal of the European Communities*, 372, 5. https://www.concurrences.com/IMG/pdf/celex_31997y1209_01__en_txt.pdf?51200/2d11f6be3f094641be7743e92a2676c8a4c232ee

European Commission. (1999). Commission Decision of 24 January 1999 relating to a proceeding under Article 81 of the EC Treaty and Article 53 of the EEA Agreement (Case IV.F.1/36.718.CECED). *Official Journal of the European Communities*, 187, 47. https://eur-lex.europa.eu/eli/dec/2000/475/oj

European Commission. (2001). Commission Notice—Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements. *Official Journal of the European Communities*,3,2, chapter 7.

European Commission. (2004). Communication from the Commission — Notice — Guidelines on the application of Article 81(3) of the Treaty. Official Journal of the European Communities, 101, 97. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52004XC0427(07)&from=EN

European Commission. (2011). Communication from the Commission: Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements. *Official Journal of the European Communities*, 11, 1. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011XC0114(04)&from=EN

European Commission. (2018, September 18). *Antitrust: Commission opens formal investigation into possible collusion between BMW, Daimler and the VW group on clean emission technology* [Press release]. https://ec.europa.eu/commission/presscorner/detail/en/IP_18_5822

European Commission. (2019, April 5). *Antitrust: Commission sends Statement of Objections to BMW, Daimler and VW for restricting competition on emission cleaning technology* [Press release]. Antitrust: SO to BMW, Daimler, VW on emission cleaning technology (europa.eu)

European Commission. (2019, October 24). *Commissioner Margrethe Vestager, GCLC Conference on Sustainability and Competition Policy*, Brussels, [Press release]. https://ec.europa.eu/newsroom/comp/items/661165

European Commission. (2020, June 23). *Consumer policy – strengthening the role of consumers in the green transition.*https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12467-Consumer-policy-strengthening-the-role-of-consumers-in-the-green-transition_en

European Commission. (2021). Commission Decision of 8 July 2021 relating to a proceeding under Article 101 of the Treaty on the Functioning of the European Union and Article 53 of the EEA Agreement (Case AT.40178 – Car Emissions). *Official Journal of the European Communities*, 458,16. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021AT40178(02)&from=EN

European Commission. (2021, July 8). *Statement by Executive Vice-President Vestager on the Commission decision to fine car manufacturers €875 million for restricting competition in emission cleaning for new diesel passenger cars* [Press release]. https://ec.europa.eu/commission/presscorner/detail/en/statement_21_3583

European Commission. (2021, September). *Competition policy brief*. ISBN: 978-92-76-41099-7. https://content.mlex.com/Attachments/20210910_4425K2MR3317JTAH/Competition%20Policy%20Brief%20-%20Green%20Deal%201-2021.pdf

European Commission. (2022). *Incorporating Sustainability into an Effects-Analysis of Horizontal Agreements*.https://ec.europa.eu/competitionpolicy/system/files/202203/kd0722074enn_HBER_sustainability.pdf

European Commission. (2022, April 19). Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements. *Official Journal of the European Communities*, 164, 1. https://eurlex.europa.eu/legalcontent/EN/TXT/?uri=CELEX%3A52022XC0419%2803%29&qid=1652453164501

Euro-Mediterranean partnership - Trade - European Commission. (2021, June 9). EU Trade. https://ec.europa.eu/trade/policy/countries-and-regions/regions/euro-mediterranean-partnership/

Farrow, S. (November, 1998). Environmental equity and sustainability: rejecting the Kaldor-Hicks criteria. *Ecological economics*, 27(2), 183-188. https://doi.org/10.1016/S0921-8009(97)00135-3

Federal Republic of Germany v European Commission, Judgment of the General Court (Fifth Chamber), 12 September, 2013, T-347/09, ECLI:EU: T:2013:418.

Gates, B. (2021). *How to Avoid a Climate Disaster: The Solutions We Have and the Breakthroughs We Need*. Penguin Random House.

Gerard, D. (April, 2018). Fairness in EU Competition Policy: Significance and Implications. *Journal of European Competition Law & Practice*, 9(4), 211–212, https://doi.org/10.1093/jeclap/lpy027

Gerbrandy, A. (2017). Solving a Sustainability-Deficit in European Competition Law. *World Competition,* 40(4), 539 – 562.

Green Economy. (2022). UNEP – UN Environment Programme. https://www.unep.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency/green-economy

Grober, U. (2007). A conceptual history of 'sustainable development' (Nachhaltigkeit). *WZB Berlin Social Science Center,* Nr. P 2007-002.

Guardian Staff Reporter, (2021, August 12). *Shell to pay $111m over decades-old oil spills in Nigeria.* The Guardian.https://www.theguardian.com/business/2021/aug/12/shell-to-pay-111m-over-decades-old-oilspills-in-nigeria

Guida, A. (2021, May 9). The precautionary principle and genetically modified organisms: A bone of contention between European institutions and member states. *Journal of Law and the Biosciences*, 8(1), 1–42. https://doi.org/10.1093/jlb/lsab012

Gurtoo, A. and Antony, S.J. (2007). Environmental regulations: Indirect and unintended consequences on economy and business. *Management of Environmental Quality*, 18(6), 626-642. https://doi.org/10.1108/14777830710826676

Hamilton, K. & Atkinson, G. (2006), *Wealth, Wellbeing and Sustainability*. Edward Elgar, Cheltenham.

Hammer, J., & Pivo, G. (2016). The Triple Bottom Line and Sustainable Economic Development Theory and Practice. *Economic Development Quarterly*, 31(1), 25-36. https://doi.org/10.1177/0891242416674808

Hanley, N.D. & E.B. Barbier. (2009). *Pricing Nature: Cost-Benefit Analysis and Environmental Policy*. Edward Elgar Publishing, Cheltenham.

Hartwick, J.M. (1992). Deforestation and national accounting. *Environmental and Resource Economics*, 2, 513-521. http://dx.doi.org/10.1007/BF00376832.

Helbling, T. (2022, February 24). *Externalities: Prices Do Not Capture All Costs*. International Monetary Fund. https://www.imf.org/external/pubs/ft/fandd/basics/external.htm

Hellenic Competition Commission (HCC) & Netherlands Authority for Consumers and Markets (ACM). (2021, January). *Technical Report on Sustainability and Competition.* https://www.acm.nl/sites/default/files/documents/technical-report-sustainability-and-competition_0.pdf

Henckens, T. (2021). *Governance of the World's Mineral Resources*. Elsevier. https://doi.org/10.1016/C2020-0-01047-9

Holden, E., Linnerud, K., & Banister, D. (June-July, 2017). The Imperatives of Sustainable Development. *Sustainable Development*, *25*(3), 213–226. https://doi.org/10.1002/sd.1647

Holmes, S. (2020). Climate change, sustainability, and competition law. *Journal of Antitrust Enforcement*, (8)2, 354-405. http://dx.doi.org/10.1093/JAENFO/JNAA006.

Howard, N. (2012). What is the Problem with Neoclassical Price Theory? *World Review of Political Economy*, 3(4), 457-477. 10.13169/worlrevipoliecon.3.4.0457

IPCC. (2022). Summary for Policymakers. *In: Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press.

Janssen, C., & Kloosterhuis, E. (2016). The Wouters case law, special for a different reason? *Thomson Reuters (Professional) UK Limited and Contributors*, 37(8). The Wouters case law.pdf (cpb.nl)

Katzemich, N. (2018, September). *Dieselgate and the German Car Industry, Corporate Capture in Europe: When big business dominates policy-making and threatens our rights.* Brussels: Alliance for Lobbying Transparency and Ethics Regulation in the EU.
https://www.alter-eu.org/sites/default/files/documents/corporate_capture_web_1.pdf

Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, 127, 221–232.
https://doi.org/10.1016/j.resconrec.2017.09.005

Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC), Kyoto, 11 December, 1997. http://unfccc.int/key_documents/kyoto_protocol/items/6445.php.

Jordan, A. (1998). *The Politics of a Multi-level Environmental Governance System: European Union Environmental Policy at 25*. CSERGE Working Paper, No. PA 98-01
http://www.cserge.ac.uk/publications/cserge-working-paper/pa-1998-01-politics-multi-level-environmental-governance-system-eu.

Lee, M. (2005). *EU Environmental Law. Challenges, Change and Decision-Making*. Hart. ISBN 1841134104

Lianos, I. (2018). Polycentric Competition Law. Current Legal Problems, 71(1), 161–213, https://doi.org/10.1093/clp/cuy008.

Liboreiro, J. (2021, August 26). *Why is the EU's new Emissions Trading System so controversial?* Euronews. https://www.euronews.com/my-europe/2021/07/16/why-is-the-eu-s-new-emissions-trading-system-so-controversial

McManus, P. (2009). Environmental Regulation. *International Encyclopedia of Human Geography*, Elsevier, 546–552. https://doi.org/10.1016/B978-008044910-4.00154-1

Monsanto Agricoltura Italia SpA and Others v Presidenza del Consiglio dei Ministri and Others, Tribunale amministrativo regionale del Lazio, 9 settembre 2003, C-236/01, 2003 I-08105 (Italia).

Monti, G. (2020). Four Options for a Greener Competition Law. *Journal of European Competition Law & Practice*, 11(3–4).

Newman, P. (1998). *The New Palgrave Dictionary of Economics and the Law*. Palgrave Macmillan, London. https://www.brown.edu/Departments/Economics/Faculty/Allan_Feldman/AMF%20Significant%20Published%20Papers/Kaldor-Hicks%20Compensation.pdf

North, D. & Alt, J. (eds.). (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press, https://wtf.tw/ref/ostrom_1990.pdf.

Nowag, J. (November 1, 2019). Competition Law's Sustainability Gap? Tools for an Examination and a Brief Overview. *Lund University Legal Research Paper Series.* http://dx.doi.org/10.2139/ssrn.3484964

Nowag J. *"Sustainability & Competition Law and Policy – Background Note"*. OECD, 1st December 2020

NRDC. (2015, August 13). *The Story of Silent Spring*. https://www.nrdc.org/stories/story-silent-spring

OECD. (2018). *Cost-Benefit Analysis and the Environment: Further Developments and Policy Use*. OECD Publishing, Paris. https://dx.doi.org/10.1787/9789264085169-en.

OECD. (2006). *Cost-Benefit Analysis and the Environment: Recent Developments.* OECD Publishing, Paris. https://doi.org/10.1787/9789264010055-7-en

OECD/UNDP. (2019). *Making Development Co-operation More Effective: 2019 Progress Report*. OECD Publishing. https://doi.org/10.1787/26f2638f-en

OECD. (1972, 26 May). *Recommendation of the Council on Guiding Principles concerning International Economic Aspects of Environmental Policies*. OECD/LEGAL/0102.

OECD. (2020). *Sustainability and Competition*. OECD Competition Committee. http://www.oecd.org/daf/competition/sustainability-and-competition-2020.pdf

OECD. (2020). *The Role of Competition Policy in Promoting Economic Recovery*. OECD 2020, https://www.oecd.org/daf/competition/the-role-of-competition-policy-in-promoting-economic-recovery-2020.pdf

Orlando, E. (2013, April). The Evolution of EU Policy and Law in the Environmental Field: Achievements and Current Challenges. Transworld-FP7.eu. http://transworld.iai.it/?p=1168

Oskam, A. J., Vijftigschild, R. A. N., Graveland, C., van Dam, Y. K., Frouws, J., & Proost, M. D. C. (1998). *Additional EU policy instruments for plant protection products: a report within the second phase of the programme: Possibilities for future EC environmental policy on plant protection products*. Wageningen Pers.

Pascual, U. et al. (2010). Valuation of Ecosystems Services: Methodology and Challenges. *The Economics of Ecosystems and Biodiversity: Ecological and Economic Foundations*, Earthscan, London.

Peeperkorn, L. (November, 2020). Competition and sustainability: What can competition policy do. *Concurrences,* 4, 26-65. https://www.concurrences.com/en/review/issues/no42020/ontopic/sustainabilityandcompetitionlaw97390#nh75.

Pollack, M. A. (2000). The End of Creeping Competence? EU Policy-Making Since Maastricht. Journal of Common Market Studies, 38(3), 519–538. https://doi.org/10.1111/1468-5965.00233

Portney, K.E. (2015). Sustainability (The MIT Press Essential Knowledge series). The MIT Press, 110-117.

Regina v Ministry of Agriculture, Fisheries and Food, ex parte John James Dent and Mary Astrid Dent, Judgment of the Court (Third Chamber), 19 March, 1992, C-84/90 (United Kingdom).

Regulation (EU) 2020/852 of 18 June 2020 on The establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088. European Parliament, Council of the European Union. http://data.europa.eu/eli/reg/2020/852/oj

Reinhardt, F., Stavins, R., & Vietor, R. (2008). Corporate Social Responsibility Through an Economic Lens. *Review of Environmental Economics and Policy*, 2(2), 219-239.

Sands, P. (1991). European Community Environmental Law: The Evolution of a Regional Regime of International Environmental Protection. The Yale Law Journal, 100(8), 2511–2523. https://doi.org/10.2307/796901

Schinkel, M. & Spiegel, Y. (2017). Can collusion promote sustainable consumption and production? International Journal of Industrial Organization, 53, 371-398, http://dx.doi.org/10.2139/ssrn.2704259.

Simon, H. A. (1979). Rational Decision Making in Business Organizations. The American Economic Review, 69(4), 493–513. http://www.jstor.org/stable/1808698

Smil, V. (2019). Growth: From Microorganisms to Megacities (1st ed.). The MIT Press.

Soini, K. and Dessein, J. (2016). Culture-Sustainability Relation: Towards a Conceptual Framework, Sustainability, (8)167. https://doi.org/10.3390/su8020167

The EU climate and energy (CARE) Package. (2021). European Environment Agency. https://www.eea.europa.eu/policy-documents/the-eu-climate-and-energy-package

Treaty Establishing the European Economic Community (EEC), Rome, March 25, 1957.

Treaty on the European Union, Maastricht, 7 February, 1992.

True Price. (2019, June). A roadmap for true pricing. 2019 True Price Foundation. https://trueprice.org/a-roadmap-for-true-pricing/

United States v. BP Exploration & Prod., Inc. (In re Oil Spill by the Oil Rig “Deepwater Horizon”), US District Court, E.D. Louisiana., 4 September, 2014, 21 F. Supp. 3d 657 (United States).

Veljanovski, C. (2021). Collusion as Environmental Protection - An Economic Assessment. Journal of Competition Law & Economics. https://doi.org/10.1093/joclec/nhab025.

Wanamaker, C. (December 15, 2015). The Environmental, Economic, and Social Components of Sustainability. www.soapboxie.com https://soapboxie.com/social-issues/The-Environmental-Economic-and-Social-Components-of-Sustainability

William Collins Sons & Co. (2012). Welfare. In Collins (Complete & Unabridged 2012 Digital Edition). HarperCollins. https://www.dictionary.com/browse/welfare

World Commission on Environment and Development. (1987). Our common future. Oxford University Press.