

# Value-Added Tax (VAT) and Sustainability in the European Union: A Radical Proposal

## Design Issues, Legal Aspects, and Policy Alternatives

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*This article aims to examine how the implementation of environmental taxes could build on the success of value-added tax (VAT) to become more efficient and consistent. This is not to increase the overall tax burden on citizens but to reorganize existing indirect taxation differently by better taking into account European Union (EU) environmental objectives, in particular regarding the circular economy. With its broad tax base, its systemic structure based on neutrality (which does not exclude differentiation), its wide acceptance among taxpayers, and its proven compliance process, the VAT has some features that could inspire environmental policymakers. It indeed impacts consumer choices at the broadest possible level while avoiding distortions.*

*The authors begin by identifying the reasons for the success and robustness of VAT. A new concept of 'green VAT' will then be proposed based not on the classical instrument of reduced rates for specific transactions as is already done and advocated by EU institutions (European Commission, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, A new Circular Economy Action Plan. For a cleaner and more competitive Europe, COM(2020) 98 final (11 Mar. 2020). See also Opinion of the European Committee of the Regions – New Circular Economy Action Plan (2020/C 440/18), OJ C 440/107 (18 Dec. 2020), para. 23.) but on a coherent life cycle approach to all goods and services. This new approach identifies negative externalities by following the same value chain as the VAT. It aligns as much as possible with the administration and compliance methods already implemented by the VAT.*

*Finally, a possible virtual use of the new green VAT concept will be presented. It does not require any legislative changes. It takes the form of a 'virtual tax' that appears on the price tag of every product without being effectively paid and may be used as an indicator for the actual environmental cost of production.*

**Keywords:** VAT, EU harmonization, environmental taxation, sustainability, life-cycle assessment.

According to the European Commission,

to fulfil the ambition [climate neutrality by 2050 and decoupling economic growth from resource use, while ensuring the long-term competitiveness of the EU and leaving no one behind], the EU needs to accelerate the transition towards a regenerative growth model that gives back to the planet more than it takes, advance towards keeping its resource consumption within planetary boundaries, and therefore strive to reduce its consumption footprint and double its circular material use rate in the coming decade.<sup>1</sup>

There is little doubt about the fact that, for these objectives to be attained, all European Union (EU) policies and instruments should be mobilized. That includes EU tax policy. In its 2020 Tax Action Plan,<sup>2</sup> the European Commission acknowledged that:

a well-designed tax system plays an important role in supporting the green transition. The use of taxation as a policy instrument will help to reach climate neutrality by 2050 as well as the other environmental objectives of the European Green Deal. In the process, it will also bring additional public tax revenues to public budgets to support the smart investments for a green transition.

### Notes

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<sup>1</sup> European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, A New Circular Economy Action Plan. For a Cleaner and More Competitive Europe*, COM(2020) 98 final (11 Mar. 2020).

<sup>2</sup> European Commission, *Communication from the Commission to the European Parliament and the Council, Action Plan for Fair and Simple Taxation Supporting the Recovery*, COM (2020) 312 final (15 July 2020), at 2.

Environmental taxes help to provide the right price signals and right incentives to producers, users and consumers to encourage less polluting consumption and contribute to sustainable growth.

There is a stark contrast between the success of the value-added tax (VAT), which has become one of the most widespread tax instruments in the world, and the resistance encountered in the implementation of environmental taxes. VAT generates, on average, 20% of governments' income worldwide.<sup>3</sup> Currently, the VAT (also known in many countries as goods and services tax, GST) is a general tax on consumption that has been implemented in 170 countries.<sup>4</sup> Originally, it was first implemented in European countries and has been the object of a continuous harmonization process at the EU level. Environmental taxes only represent 5% of the same revenue in Organization for Economic Cooperation and Development (OECD) countries.<sup>5</sup> It is estimated that, in order to alleviate the harmful effects of economic activities even partially, environmental taxes should yield at least 10% of average public revenues.<sup>6</sup> This was the target established by the European Commission in 2011 in its Roadmap for Resource Efficiency.<sup>7</sup> The objective is far from being achieved since, between 2011 and 2019, the share of environmental taxes in the income of European states decreased from 6.2% to 5.9%.<sup>8</sup> However, the European Green Deal reaffirms the importance of creating 'the context for broad-based tax reforms, ( ... ) shifting the tax burden from labour to pollution, and ( ... ) [making] a more targeted use of VAT rates to reflect increased environmental ambitions'.<sup>9</sup>

Resistance to environmental taxes is largely due to the fact that they are almost always limited to a specific

industry or product property. This results in a relatively rapid erosion of the tax base,<sup>10</sup> an increase in administration and compliance costs with each new tax levy,<sup>11</sup> a feeling of discrimination in some particularly targeted sectors,<sup>12</sup> an increase in lobbying costs related to perceived losses of sectoral competitiveness,<sup>13</sup> and the fact that the use of different tax instruments can generate pollution shifts from one environmental area to another.<sup>14</sup> On the contrary, general consumption taxes enjoy a relatively large public acceptance while having a proven revenue-generating capacity.

## I HARMONIZATION OF VAT AND OTHER INDIRECT TAXES IN THE EU AND THE LACK OF ENVIRONMENTAL DIMENSION

This section aims at highlighting the contrast between the success of the development of a common European VAT system (independently from any environmental consideration) and the failure of the attempts by EU institutions to introduce environmentally-related indirect taxes.

According to Article 113 of the Treaty on the Functioning of the European Union (TFEU), the EU has the competence 'to adopt provisions for the harmonization of legislation concerning turnover taxes, excise duties and other forms of indirect taxation to the extent that such harmonization is necessary to ensure the establishment and the functioning of the internal market and to avoid distortion of competition'.<sup>15</sup> Another provision of the treaty allowing the EU to legislate in the field of taxation is Article 192 TFEU, which allows the Union institutions to adopt measures in order to achieve the following environmental policy objectives: 'preserving, protecting and improving the quality of the environment, protecting

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<sup>3</sup> I. Lejeune, *Designing VAT/GST Law to Be Effective and Efficient: A Global Benchmarking of VAT/GST Systems*, in *The Future of Indirect Taxation – Recent Trends in VAT and GST Systems Around the World* 728 (T. Ecker, M. Lang & I. Lejeune eds, Kluwer Law International 2011).

<sup>4</sup> OECD, *Consumption Tax Trends 2020, VAT/GST and Excise Rates. Trends and Policy Issues* (OECD Publishing 2020); *ibid.*, at 724–727.

<sup>5</sup> OECD, *Compare Your Country. Environmentally Related Tax Revenue* (2019), <https://www.compareyourcountry.org/environmental-taxes> (accessed 21 July 2021).

<sup>6</sup> E. U. von Weizsäcker & J. Jesinghaus, *Ecological Tax Reform. A Policy Proposal for Sustainable Development* (Zed Books 1992); UNEP, *Sustainable Consumption and Production: A Handbook for Policymakers* (United Nations Environment Programme 2015).

<sup>7</sup> European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Roadmap to a Resource Efficient Europe*, COM(2011) 571 final (20 Sept. 2011).

<sup>8</sup> Eurostat, *Environmental Tax Revenues* (online data code: T2020\_RT320), [https://ec.europa.eu/eurostat/databrowser/view/t2020\\_rt320/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/t2020_rt320/default/table?lang=en) (accessed 21 July 2021).

<sup>9</sup> European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, The European Green Deal*, COM(2019)/640 final (11 Dec. 2019), 2.2.2, at 17.

<sup>10</sup> European Environment Agency, *Environmental Taxation and EU Environmental Policies*, Report No 17/2016 (6 Sept. 2016).

<sup>11</sup> D. Fullerton, *Why Have Separate Environmental Taxes?*, 10 *Tax Policy Econ.* 33–70 (1996).

<sup>12</sup> OECD, *Taxing Energy Use 2019: Using Taxes for Climate Action* (OECD Publishing 2019).

<sup>13</sup> N. A. Braathen, *The Political Economy of Environmental Taxation*, in *Handbook of Research on Environmental Taxation* 230–245 (J. E. Milne & M. S. Andresen eds, Edward Elgar Publishing 2014).

<sup>14</sup> M. G. W. M. Peeters, *Twenty Years of EU Environmental Legislation After Maastricht: The Increasing Role of the EU as a Global Green Standard-Setter*, in *The Treaty on European Union 1993–2013: Reflections from Maastricht* 535–556 (M. D. Visser & A. P. V. D. Mei eds, Intersentia 2013).

<sup>15</sup> This provision is only applicable to indirect taxes; existing directives in the area of direct taxation have been adopted on the basis of the general Internal market clause of Art. 115 TFEU. G. Kofler, *EU Power to Tax: Competences in the Area of Direct Taxation*, in *Research Handbook on European Union Taxation Law* 11 (C. Panayi, W. Haslehner & E. Traversa eds, Edward Elgar 2020).

human health, prudent and rational utilization of natural resources, promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change'. Until now, however, no legislative act in the field of taxation has been adopted on that basis.

In both cases, EU harmonization provisions in the field of taxation must be adopted according to a special legislative procedure requiring the sole consent of the council (unanimity) after consultation of the European Parliament and of the European Economic and Social Committee. Despite the unanimity requirement, the council has adopted numerous directives – and even regulations – on that legal basis in the areas of value-added tax, excises duties, and energy taxes as well as indirect taxes on the raising of capital.<sup>16</sup>

The EU harmonization of the VAT began in 1967<sup>17</sup> and is still ongoing. Those directives aimed at replacing the existing cascading (or cumulative) turnover taxes<sup>18</sup> with a harmonized tax inspired by the model that France had implemented in 1954, first on large companies and later, in 1966, on the retail sector.<sup>19</sup> The drivers of this harmonization were, among others, the importance of turnover tax revenues in the Member States' budgets, their direct impact on price formation and competition conditions, and the political dynamics of EU integration.<sup>20</sup> However, there was no concern about the environmental dimension.

The VAT today is primarily regulated by the 2006/112/CE Directive.<sup>21</sup> In the last decades, many changes were introduced,<sup>22</sup> most of them aiming at facilitating the abolition of fiscal frontiers in the single market, but none were motivated by environmental concerns. New rules

were adopted concerning the place of (cross-border) supplies of taxable transactions and the correlative right of a Member State to collect the tax, which should ensure effective (single) taxation in the EU.<sup>23</sup> Stricter conditions were set for differentiations of rates and exemptions among the Member States. Each Member State was required to set a standard rate of minimum 15% (they are generally much higher and range between 17% and 27%), and reduced rates may only apply to a specific list of the goods and services contained in Annex III of the directive as well as in specific national derogations.

As mentioned above, Article 113 TFEU also allows harmonization of specific consumption taxes, i.e., excise duties. In contrast with the VAT, excise duties are specific indirect taxes. They are applied as an amount per quantity of the product (e.g., per kg, per degree of alcohol, etc.) – not *ad valorem* as the VAT – and only determined goods are taxed when used or consumed. The distorting effect of an absence of harmonization of excise duties was previously pointed out in the early days of EU integration. The Neumark Report already emphasized that the effective charge of excise duties was diversified among the founding Member States with certain goods not being subject to any specific tax in several countries, whereas they were in others (e.g., wine, salt, tea, matches).<sup>24</sup> This convoluted the international trade of taxed goods and, moreover, upon the abolition of fiscal frontiers, the rates should be at least aligned. This would prevent competition distortions as regards the concerned products due to different production costs and – as a consequence – different prices.<sup>25</sup> The Commission fully endorsed those concerns.<sup>26</sup> After several unsuccessful proposals by it in the 1970s, except for manufactured tobacco,<sup>27</sup> the

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<sup>16</sup> On VAT and excises duties, see *infra*. See also Council Directive 2008/7/EC of 12 Feb. 2008 concerning indirect taxes on the raising of capital, OJ L 46/11 (21 Feb. 2008), which is the recast of the original 1969 Directive (Council Directive 69/335/EEC of 17 July 1969 concerning indirect taxes on the raising of capital, OJ L 249/25 (3 Oct. 1969)).

<sup>17</sup> First Council Directive 67/227/EEC of 11 April 1967 on the harmonisation of legislation of Member States concerning turnover taxes, OJ 71/1301 (14 Apr. 1967), at 1301–1303 and Second Council Directive 67/228/EEC of 11 April 1967 on the harmonisation of legislation of Member States concerning turnover taxes – Structure and procedures for application of the common system of value added tax, OJ 71/1303 (14 Apr. 1967), at 1303–1312.

<sup>18</sup> Those pre-VAT turnover taxes were mainly introduced to deal with the financial difficulties following the First World War and, in the Netherlands, to counter the effects of the global economic crisis that ensued after the Wall Street Crash of 1929. See A. van Doesum, H. van Kesteren & G.-J. van Norden., *Fundamentals of EU VAT LAW* 3 (Kluwer Law International 2016); A. P. Lier ed., D. G. van Vliet., A. D. G. Heering & G. H. Zevenboom, *Tax and Legal Aspects of EC Harmonisation* 80 (Kluwer Law and Taxation Publishers 1993).

<sup>19</sup> M. Lauré, *La taxe sur la valeur ajoutée* (Librairie du Recueil Sirey 1953); M. Lauré, *Aspects économiques et techniques de la taxe à la production* (Librairie du Recueil Sirey 1952). On the origin of EU VAT, see Ch. Herbain, *Origin and Merits of the EU VAT: A Critical Appraisal*, in *Research Handbook on European Union Taxation Law* 320 (C. Panayi, W. Haslechner & E. Traversa eds, Edward Elgar 2020).

<sup>20</sup> Communauté Economique Européenne – Commission, *Rapport du comité fiscal et financier (Neumark Report)* 25, 32, 40 (1962). R. de la Feria, *VAT and the EC Internal Market: The Shortcomings of Harmonisation*, Oxford University Centre For Business Taxation, Working Papers 09/29, 1–2 (2009), <https://core.ac.uk/download/pdf/288286289.pdf> (accessed 21 July 2021).

<sup>21</sup> Council Directive 2006/112/EC of 28 Nov. 2006 on the common system of value added tax (the VAT Directive), OJ L 347/1 (11 Dec. 2006), at 1–118.

<sup>22</sup> For a summary of the amendments, see B. Terra & J. Kajus, *A Guide to the European VAT Directives. Introduction to European VAT* vol. 1, 300–304 (IBFD 2021).

<sup>23</sup> However, double taxation still occurs within the European Union and is mostly caused by a lack of coordination between domestic VAT authorities.

<sup>24</sup> *Neumark Report*, *supra* n. 20, at 49.

<sup>25</sup> *Ibid.*, at 45–46, 50.

<sup>26</sup> See Commission of the European Communities, *Proposals for Harmonizing Consumer Taxes Other than VAT*, COM (72) 225 final (23 Feb. 1972), at 6; Commission of the European Communities, *Completion of the Internal Market: Approximation of Indirect Tax Rates and Harmonization of Indirect Tax Structure. Global Communication from the Commission*, COM(87) 320 final/2 (26 Aug. 1987), at 16–17.

<sup>27</sup> Council Directive 72/464/EEC of 19 December 1972 on taxes other than turnover taxes which affect the consumption of manufactured tobacco, OJ L 303/1 (31 Dec. 1972), at 1; Second Council Directive 79/32/EEC of 18 December 1978 on taxes other than turnover taxes which affect the consumption of manufactured tobacco, OJ L 10/8 (16 Jan. 1979), at 8–10.

harmonization process regarding excise duties really accelerated with the single market process.<sup>28</sup> A general legal framework surrounding excise duties was adopted in 1992.<sup>29</sup> A general directive was approved, and specific directives followed on tobacco products, mineral oils, and alcohol.<sup>30</sup> Currently, the general regime applying to all products subject to excise duties is contained in Council Directive 2008/118/EC.<sup>31</sup> It entails the conditions for chargeability, collection, reimbursement, exemptions, and common provisions concerning the production, processing, holding, and movement of excise goods.

Regarding environmental excise duties, it is worth mentioning that the principal instrument of environmental tax policy at the EU level is the Energy Tax directive, i.e., Council Directive 2003/96/EC of 27 October 2003.<sup>32</sup> It provides for harmonized minimum levels of taxation of motor fuels, heating fuels, and electricity,<sup>33</sup> and it allows exemptions or reduced rates for certain products.<sup>34</sup> The directive contains explicit references to environmental objectives (EU's climate commitments). It cannot, however, be regarded (yet) as an effective instrument of EU environmental and climate policy.<sup>35</sup> Moreover, in some cases, it even constitutes an obstacle to efficient environmental policies at the domestic level.<sup>36</sup> For example, a very favourable tax treatment is granted to coal, a highly

polluting energy source.<sup>37</sup> Since 1992 when it even proposed the adoption of a harmonized EU CO<sub>2</sub> tax,<sup>38</sup> the Commission has tried for years to modify the taxation framework of energy products to better take into account environmental concerns, in particular regarding the tax treatment of fossil fuels and renewable energies. In a 2011 proposal, the Commission endeavoured to make the level of taxation dependent not only on the type of energy sources but also on their level of CO<sub>2</sub> emission and their net calorific value.<sup>39</sup> However, it encountered fierce opposition by some Member States, and the proposal was withdrawn.<sup>40</sup> The difficulty to pass environmental tax legislation at the EU level due to the unanimity requirement is probably one of the reasons why the Commission opted for non-tax instruments such as the European Emissions Trading Scheme in 2003 to fight against emissions.<sup>41</sup>

Nevertheless, the Pigouvian nature of environmental taxes – their level should reflect the marginal costs that the use of the products on which they are levied imposes on society as a whole but that are not incorporated into the market prices<sup>42</sup> – makes them ideal candidates for harmonization at the EU level. Moreover, they are prone to important distortionary effects when levied by a single jurisdiction<sup>43</sup> and aim at protecting a general interest

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<sup>28</sup> A literature review on the phenomenon of cross-border shopping can be found in A. Leal, J. López-Laborda & F. Rodrigo, *Cross-Border Shopping: A Survey*, 16(2) Int'l Adv. Econ. Res. 135–148 (2010).

<sup>29</sup> The Commission issued a first draft framework directive on excise duties in 1972. See B. J. M. Terra & P. J. Wattel, *Chapter 7, Excises and Energy Taxation*, *European Tax Law* 464 (Wolters Kluwer 2012).

<sup>30</sup> Subsequently, these directives were amended several times and – except those relating to alcohol – repealed and recasted.

<sup>31</sup> Council Directive 2008/118/EC of 16 December 2008 concerning the general arrangements for excise duty and repealing Directive 92/12/EEC, OJ L 9/12 (14 Jan. 2009), at 12–30.

<sup>32</sup> Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity, OJ L 283/51 (31 Oct. 2003). It replaced the previous two energy directives limited to mineral oils Council Directive 92/81/EEC on the harmonization of the structure excise duties on mineral oils, OJ L 316/12 (31 Oct. 1992), at 12–15, and Council Directive 92/82/EEC on the approximation of the rates of excise duties on mineral oils, OJ L 316/19 (31 Oct. 1992), at 19–20.

<sup>33</sup> The minimum prescribed levels of taxation vary according to the type of fuels (e.g., leaded or unleaded petrol, gas oil, kerosene, LPG, natural gas, electricity, and coal); their use (i.e., motor or heating fuel, business or non-business use), and specific purpose (e.g., agricultural, public works, vehicles intended for use off of the public roadway).

<sup>34</sup> Under certain conditions, Member States are authorized to apply differentiated rates (e.g., based on product quality or quantitative consumption levels); tax reductions (e.g., in favour of energy-intensive businesses); or exemptions (e.g., to electricity of solar origin).

<sup>35</sup> Directive 2003/96/EC, *supra* n. 32, recital 6 (that refers to the integration clause; Art. 6 TEC, now Art. 11 TFEU) and recital 7 (that refers to the EU's commitments in the context of the United Nations Framework Convention on Climate Change and the Kyoto Protocol). See also the – even more explicit – references to environmental policy objectives in the 1997 Commission's Proposal (Commission of the European Communities, *Proposal for a Council Directive Restructuring the Community Framework for the Taxation of Energy Products*, COM(97) 30 final) (12 Mar. 1997).

<sup>36</sup> A. Pirlot, *Exploring the Impact of EU Law on Energy and Environmental Taxation*, in *Research Handbook on European Union Taxation Law* 359 (C. Panayi, W. Haslehner & E. Traversa eds, Edward Elgar 2020); J. van Eijndhoven, *Energy Taxation at the European Level: What Does It Do for the Environment and Sustainability?*, 20(6) EC Tax Rev. 283, at 285 (2011). See Directive 2003/96/EC, *supra* n. 32, Art. 2, para. 4.

<sup>37</sup> The commission emphasized this issue in its 2011 proposal to reform the energy taxation directive (at 3: '(...) some products are favoured over others, the most favourable treatment being reserved to coal').

<sup>38</sup> Proposal of 30 June 1992 for a Council Directive introducing a tax on carbon dioxide emissions and energy, COM(92)226 (30 June 1992).

<sup>39</sup> *Proposal for a Council Directive amending Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity*, COM(2011) 169 final (13 Apr. 2011). For a comment, J. Cottrel & K. Schlagelmilch, *Everyone's a Winner With the New Energy Tax Directive*, 22 Int'l Tax Rev. 55 (2012).

<sup>40</sup> Withdrawal of Commission Proposals, *List of Withdrawn Proposals*, OJ C 80/17 (7 Mar. 2015), at 17–23. The Commission has launched a new evaluation of the energy taxation directive in 2017. See European Commission, *Evaluation Energy Taxation Directive* (21 July 2021), [https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-4224148\\_en](https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-4224148_en).

<sup>41</sup> Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, OJ L 275/32 (25 Oct. 2003), at 32–46.

<sup>42</sup> A. C. Pigou, *The Economics of Welfare* (Macmillan 1920).

<sup>43</sup> This can be easily observed when looking at the long queues at the gas stations at the Luxembourg border formed by French, German, Dutch, and Belgian cars.



common to all Member States and all EU citizens and even beyond as the term ‘global commons’ suggests.<sup>44</sup> Although green taxes do not pursue a budgetary aim, they could – as proposed by the Commission in 2018 and agreed upon during the last negotiations on the EU budget and the NextGenEU programme – become new EU own resources.<sup>45</sup> The emphasis by the new EU Commission that is put on the green new deal and its taxation dimension (carbon border taxes) could effectuate a long-watered reform of the EU framework on the taxation of energy products. This could be accomplished by raising minimum thresholds on fossil products and allowing more exemptions/reductions regarding cleaner energy.

The Commission also unsuccessfully attempted to harmonize car taxation to make it more environmentally friendly.<sup>46</sup> However, no unanimity could be made among the Member States as has happened for other initiatives such as financial transaction taxes (including under enhancement cooperation)<sup>47</sup> and, more recently, digital taxes.<sup>48</sup> In 2019, the Commission proposed using the passerelle clauses of Article 48(7) TFEU (general) and 192(2) TFEU (environmental taxes) to gradually shift to the ordinary legislative procedure with a qualified majority within the council and co-decision of the European Parliament.<sup>49</sup>

## 2 CHARACTERISTICS OF THE VAT FROM AN ENVIRONMENTAL PERSPECTIVE

VAT has specific characteristics that make it interesting from an environmental tax perspective. Based on the directives, the Court of Justice of the European Union (CJEU) has summarized the four main characteristics of the VAT as follows: ‘(i) [VAT] applies generally to goods or services; (ii) it is proportionate to the price of those goods and services, irrespective of the number of transactions carried out; (iii) it is levied at each stage of the production and distribution process; (iv) and it applies to the added value of the goods and services in question’.<sup>50</sup>

The VAT has a broad scope of application (generality). As a general tax on turnover, its purpose is ‘to cover all economic transactions in the Member State concerned’. VAT is thus distinct from excise duties that only apply to certain goods or services and/or certain transactions. This broad scope makes it possible to preserve the neutrality of the tax across the various economic sectors and secure tax revenues. The generality of VAT results in a strict interpretation of the exceptions provided for in the VAT regulations, in particular with regard to the principle of taxability of illegal transactions, exemptions, and reduced rates.<sup>51</sup>

The VAT is strictly proportional to the tax base (generally the value of the consideration for taxable transactions). This occurs when its rate does not vary according to the quantity and value of the goods and services that are subject to VAT nor according to the assets or income of the taxpayer. The larger the taxable base, the higher the tax even if the tax rate does not vary. Although there are different VAT rates, they are uniformly applicable to goods and services of the same category. As will be shown later, this latter characteristic may constitute an obstacle to integrating environmental concerns if the tax base only includes the ‘market price’ and not the ‘environmental price’ of the goods and services involved in the transactions.

Thirdly, the VAT is collected at each stage of the production, transformation, and circulation of goods and services (multi-stage tax). This implies that taxable persons are liable for the tax they charge to their customers (in other words, the state subcontracts the collection of the tax to taxable persons). As collectors on behalf of the treasury, taxable persons are subject to numerous administrative, reporting, and accounting obligations related to the determination and collection of VAT. One of the main advantages of this fractional collection method is, in principle, to limit fraud at the retailer stage (last sale before consumption). The taxable person making this sale must establish that he has made sales that create the right to deduct (in principle, he must therefore have collected VAT on his sales) in order to be able to deduct the VAT

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<sup>44</sup> See *The Commons and the New Global Governance* (S. Cogolati & J. Wouters eds, Edward Elgar 2019); O. Karakosta, C. Kotsogiannis & M.-A. Lopez-Garcia, *Indirect Tax Harmonization and Global Public Goods*, 21(1) MA. Int’l Tax Pub. Fin. 29 (2014).

<sup>45</sup> See e.g., the plastic ‘tax’ instituted by the Council Decision (EU, Euratom) 2020/2053 of 14 December 2020 on the system of own resources of the European Union and repealing Decision 2014/335/EU, Euratom, OJ L 424/1 (15 Dec. 2020), at 1–10. See also Council Regulation (EU, Euratom) 2020/2093 of 17 December 2020 laying down the multiannual financial framework for the years 2021 to 2027, OJ L 433/11 (22 Dec. 2020), at 11–22.

<sup>46</sup> European Commission, *Proposal for a Directive of 5 July 2005 on Passenger Car Related Taxes*, COM (2005) 261 (5 July 2005).

<sup>47</sup> European Commission, *Proposal for a Directive of 28 September 2011 on a Common System of Financial Transaction Tax and Amending Directive 2008/7/EC*, COM(2011) 594 (28 Sept. 2011) and *Proposal of 14 February 2013 Implementing Enhanced Cooperation in the Area of Financial Transaction Tax*, COM(2013) 71 (14 Feb. 2013).

<sup>48</sup> European Commission, *Proposal for a Directive of 21 March 2018 on the Common System of a Digital Services Tax on Revenues Resulting from the Provision of Certain Digital Services*, COM (2018) 148 (21 Mar. 2018).

<sup>49</sup> Communication from the Commission to the European Parliament, the European Council and the Council, *Towards a More Efficient and Democratic Decision Making in EU Tax Policy*, COM (2019) 8 final (15 Jan. 2019).

<sup>50</sup> See specifically CJEU, 3 Oct. 2006, Banca popolare di Cremona, Case C-475/03, ECLI:EU:C:2006:629, para. 28.

<sup>51</sup> On EU VAT in general, see van Doesum, van Kesteren & van Norden, *supra* n. 18.

paid on his inputs. Moreover, since suppliers declare their sales so that they are able to do this, the tax authorities may perform crosschecks. For this reason, the VAT system ensures a higher rate of compliance than a tax collected only at the retail stage. Moreover, in the case of tax collected only at the retail stage, in the event of fraud, the entire tax revenue is diverted from the treasury. Conversely, fraud at the retail level in a VAT system results in a smaller loss since, in this case, it is only the part of the VAT due on the value added by the last transaction that is lost.

Finally, the VAT grants a right to deduct to VAT taxable persons. Despite being collected at all stages of the production chain, it is neutral for taxpayers due to the deduction mechanism. In practice, taxable persons collect it on their sales (output VAT) but also pay it on their purchases (input VAT). The deduction mechanism inherent in the VAT system allows taxable persons, before paying the collected VAT to the treasury, to charge the VAT paid to their suppliers. As a result of this same mechanism, it is neutral with respect to the number of transactions that preceded consumption. The introduction of the deduction mechanism avoids the cascade phenomenon whereby the tax is applied to both inputs and to the production using these inputs. Only the net value of final sales constitutes the VAT base.

Those elements aim at ensuring tax neutrality.<sup>52</sup> This neutrality manifests itself in different facets, including the fact that it is a general tax on consumption (not on production) that is levied on a broad base regardless of the number of transactions taking place in the production and distribution process before the stage at which it is charged. This implies that businesses – even if identified as taxable persons – should not bear the burden of the VAT (borne instead by the consumers) through the deduction of input tax on purchases. The same concept of neutrality towards the origin of the goods or services is also discerned in the application of the VAT to international trade as exports are exempted, and imports are taxed at the same rate as local production.<sup>53</sup> However, neutrality, even in its current ‘environmentally blind’ interpretation, does not exclude differentiation. Applying a line of reasoning typical

from a non-discrimination analysis, differences in treatment are acceptable if they apply to situations that cannot be considered comparable or if they can be justified by reasons of general interest.<sup>54</sup> Moreover, political reasons may sometimes be the cause of derogations and exceptions to otherwise general regimes. The EU VAT expressly provides for exemptions and reduced rates for certain economic transactions that therefore enjoy a more favourable treatment than others do. Some of them may be directly connected with environmental concerns such as the possibility to adopt reduced VAT rates for the ‘supply of services provided in connection with street cleaning, refuse collection and waste treatment’ or for the ‘minor repairing of bicycles, shoes and leather goods, clothing and household linen’.<sup>55</sup> However, although Member States enjoy a certain level of discretion in implementing those favourable measures, environmental concerns may never justify breaches of the VAT directive as the court clearly indicated in *European Commission v. United Kingdom* (2015). This case regards the application of reduced rates for the installation of energy saving materials in private dwellings under a VAT directive provision allowing reduced rates for the ‘provision, construction, renovation and alteration of housing, as part of a social policy’.<sup>56</sup>

### 3 ENVIRONMENTAL TAXATION AND ECOLOGICAL FOOTPRINT: THE RELEVANCE OF AN INTEGRATED APPROACH BASED ON LIFE CYCLE ASSESSMENT (LCA)

The reasons for the reluctance towards differentiated green VAT rates have been noted by many experts and academics. They were recently recalled by Herbain<sup>57</sup> who nevertheless considers that reduced rates on energy used as tax incentives in favour of products that are more energy efficient deserve further examination. The mistrust of reduced rates is based on the following reasons: risk of increased administrative costs for businesses and states,<sup>58</sup> insufficiency to change behaviours,<sup>59</sup> risk of non-integration of the tax in the prices,<sup>60</sup>

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<sup>52</sup> For an in-depth analysis of this principle, see *ex multis* C. A. Herbain, *VAT Neutrality* (Larcier 2015).

<sup>53</sup> Before 1991, the terms importations and exportations referred to both transactions between EEC Member States and between EEC Member States and third countries. Currently, they only refer to the latter since the former are now defined as ‘intra-Community’ transactions.

<sup>54</sup> On non-discrimination, derogations and justifications in EU law, see C. Barnard, *The Substantive Law of the EU* 145 et seq. (Oxford University Press 2019); R. Schütze, *European Union Law* 493 et seq. (Cambridge University Press 2018).

<sup>55</sup> VAT Directive, *supra* n. 21, Annex III.

<sup>56</sup> CJEU, 4 June 2015, *Commission v. United Kingdom of Great Britain and Northern Ireland*, Case C-161/14, ECLI:EU:C:2015:355, paras 30 and 31.

<sup>57</sup> C. A. Herbain, *Should VAT Be the Next Environmental Policy Tool?*, 31(2) Int'l VAT Monitor (2020).

<sup>58</sup> I. Crawford, M. Keen & S. Smith, *Value Added Tax and Excises*, in *Dimensions of Tax Design: The Mirrlees Review* (J. Mirrlees et al. eds, Oxford University Press 2010).

<sup>59</sup> European Commission, *The Use of Differential VAT Rates to Promote Changes in Consumption and Innovation: Final Report* (25 June 2008), [http://ec.europa.eu/environment/enveco/taxation/pdf/var\\_final.pdf](http://ec.europa.eu/environment/enveco/taxation/pdf/var_final.pdf) (accessed 21 July 2021).

<sup>60</sup> F. Oosterhuis, A. Dodoková et al., *The Use of Differential VAT Rates to Promote Changes in Consumption and Innovation* 4 (Institute for Environmental Studies 2008).

risk of rebound effect,<sup>61</sup> insufficiency to generate progressive effects,<sup>62</sup> risks of fraud,<sup>63</sup> risk of distortion between states,<sup>64</sup> risk of public loss revenue,<sup>65</sup> no consistency in the definition of the 'green' criteria,<sup>66</sup> and product evolution.<sup>67</sup>

It should be noted that these criticisms specifically target the use of reduced rates which, despite being favourably seen in the public opinion, are controversial per se and not only for environmental purposes<sup>68</sup> and not the fact that a VAT-like structure and operation could be used in the field of environmental taxation. The theory of optimal taxation indeed recommends that all final consumption goods and services should be taxed uniformly without differentiated rates. The same theory recognizes, however, that products generating negative externalities should be taxed more heavily than others while minimizing administrative costs for businesses and governments.<sup>69</sup>

Nevertheless, the use of LCA enables refining the consistent identification of negative externalities associated with goods and services. It could serve as a valid basis to integrate an ecological dimension into the current VAT system and encompass (almost) all economic transactions.

Environmental measures, whether in the form of taxes, subsidies or regulations, are indeed often limited to specific characteristics of certain activities or products as if focusing on one dimension was adequate to eliminate the problem of a negative ecological footprint. However, it often results from a multiplicity of factors. For example, focusing on reducing only CO<sub>2</sub> emissions is not enough to protect the environment. Currently, the most alarming indicators for the stability of the earth system are,

besides – and maybe even before – global warming, the loss of biodiversity and the disruption of the nitrogen and phosphorus cycles due to the excessive use of fertilizers and detergents.<sup>70</sup> In addition to these challenges and that of climate change, other concerns include land use, water use, ocean acidification, air pollution, etc.

According to a widely held view,<sup>71</sup> there is a need to develop an integrated approach to environmental problems and to the products and activities that cause them. Among these integrated approaches, LCA is considered the most effective and reliable.<sup>72</sup> LCA is a method that has been framed by international standards for several years.<sup>73</sup> It consists of assessing the impacts of any activity or product on the environment, human health, and resources throughout its life cycle from the extraction of raw materials through production, transport, and use to disposal or recycling of materials. The method takes multiple impact categories into account: not only global warming but also soil and ocean acidification, eutrophication, stratospheric ozone depletion, ecotoxicity, water management, land use, human health threats, depletion of non-renewable resources, ionizing radiation, formation of photo-oxidizing gases, and emission of matter particles. The interest of this method is to contribute to avoiding the displacement of pollution from one place to another, from one impact category to another, from one stage of the life cycle to another, and simply the omission of significant impacts on the environment, health, or resources.

For more than ten years, the EU has been implementing the Product and Organizational Environmental Footprint (PEF and OEF) project.<sup>74</sup> This project should

## Notes

<sup>61</sup> S. Naess-Schmidt, S. T. Jespersen, et al., *European Commission, Reduced VAT for Environmentally Friendly Products. Final Report for Directorate General Taxation and Customs Union* 13, 24, 49 (Copenhagen Economics 2008).

<sup>62</sup> A. B. Atkinson & J. E. Stiglitz, *The Design of Tax Structure: Direct Versus Indirect Taxation*, 6(1/2) J. Pub. Econ. 55–75 (1976); G. N. Carlson & M. K. Patrick, *Addressing the Regressivity of a Value-Added Tax*, 42(3) Nat'l Tax J. 339–51 (1989); B. Boutchenik, *La taxe sur la valeur ajoutée – Les effets redistributifs de la Taxe sur la valeur ajoutée* (Conseil des Prélèvements Obligatoires, Rapport Particulier 2015), <https://www.ccomptes.fr/sites/default/files/EzPublish/20151216-rapport-Boutchenik-effetsredistributifs-de-la-TVA-.pdf> (accessed 21 July 2021); Herbain, *supra* n. 57.

<sup>63</sup> International Monetary Fund Fiscal Affairs Department, *Iceland: Technical Assistance Report: Modernizing the Icelandic VAT*, 14/291 Country Report, 6 (2014).

<sup>64</sup> Naess-Schmidt et al., *supra* n. 61, at 80; R. de la Feria, *Blueprint for Reform of VAT Rates in Europe*, 43(2) Intertax (2015).

<sup>65</sup> Oosterhuis et al., *supra* n. 60, at 5.

<sup>66</sup> *Ibid.*

<sup>67</sup> *Ibid.*, at 4.

<sup>68</sup> See R. de la Feria & M. Walpole, *The Impact of Public Perceptions on General Consumption Taxes*, 67(5) Brit. Tax Rev. 637–669 (2020).

<sup>69</sup> J. Mirrlees, *Chapter 20, Conclusions and Recommendations for Reform*, in *Tax by Design: The Mirrlees Review* (Institute for Fiscal Studies 2011).

<sup>70</sup> W. Steffen, K. Richardson & J. Rockström, *Planetary Boundaries: Guiding Human Development on a Changing Planet*, 347(6223) Sci. 1259855 (2015).

<sup>71</sup> European Parliament, *European Parliament Resolution of 15 January 2020 on the European Green Deal* (2019/2956(RSP)) (2020); IPBES, *Report on Progress in Implementing the Work Programme of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*, CBD/SBSTTA/23/INF/16 (22 Nov. 2019); UNEP, *Strengthening Synergies: How Action to Achieve Post-2020 Global Biodiversity Conservation Targets Can Contribute to Mitigating Climate Change* (2020), (accessed 21 July 2021).

<sup>72</sup> European Commission, *Integrated Product Policy. Building on Environmental Life-Cycle Thinking*, COM(2003) 302 final (18 Mar. 2003), <https://ec.europa.eu/transparency/regdoc/rep/1/2003/EN/1-2003-302-EN-F1-1.Pdf> (accessed 21 July 2021); *Life Cycle Assessment. Theory and Practice* (M. Z. Hauschild, K. Rosenbaum & S. I. Olsen eds, Springer 2018); S. Sala et al., *European Commission, Life Cycle Assessment for the Impact Assessment of Policies. Life Thinking and Assessment in the European Policies and for Evaluating Policy Options*, Joint Research Centre Technical Reports (2016), <https://ec.europa.eu/jrc/en/publication/life-cycleassessment-impact-assessment-policies> (accessed 21 July 2021).

<sup>73</sup> ISO 14040, *Environmental Management – Life Cycle Assessment – Principles and Framework* (2006); ISO 14044, *Environmental Management – Life Cycle Assessment – Requirements and Guidelines* (2006); ISO 14071, *Environmental Management – Life Cycle Assessment – Critical Review Processes and Reviewer Competencies: Additional Requirements and Guidelines to ISO 14044:2006* (2014).

<sup>74</sup> L. Zampori & R. Pant, *Suggestions for Updating the Product Environmental Footprint (PEF) Method* (Joint Research Centre Technical Reports 2019), [https://eplca.jrc.ec.europa.eu/permalink/PEF\\_method.pdf](https://eplca.jrc.ec.europa.eu/permalink/PEF_method.pdf) (accessed 21 July 2021); L. Zampori & R. Pant, *Suggestions for Updating the Organizational Environmental Footprint (OEF) Method* (Joint Research Centre Technical Reports 2019), [https://eplca.jrc.ec.europa.eu/permalink/OEF\\_method.pdf](https://eplca.jrc.ec.europa.eu/permalink/OEF_method.pdf) (accessed 21 July 2021).

soon enter its regulatory phase. It consists of developing a harmonized LCA method aiming to increase the comparability of communication on the environmental performance of products. To do so, specific methodological rules have been introduced for different product categories that reduce the flexibility of the LCA and contribute to making its results more reliable. The European Commission is preparing a legislative proposal on substantiating green claims aiming at setting a common methodological framework for environmental claims in order to make them comparable and verifiable.<sup>75</sup> This proposal should build on the PEF and OEF frameworks. A first example of the use of PEF on a large scale is the eco-score label launched in February 2021 by Yuka and several partners.<sup>76</sup> Yuka is a consumer advice application that grants health scores for food and cosmetic products. It has already assigned an Eco-score for two hundred and forty thousand food products.

The question that arises in this context is whether the LCA scores of products, particularly in the form harmonized by the PEF, could be used for tax purposes and how. The results of an LCA are usually expressed in the units specific to each of the impact categories that are listed (equ-CO<sub>2</sub> for the climate change category, equ-SO<sub>2</sub> for the acidification category, etc.). They can also be aggregated into a single score in a common unit, for example, monetary.<sup>77</sup> Arendt et. al. have identified nine methods of monetizing LCA results based on different damage estimation criteria (market prices, abatement costs, restoration costs, revealed preferences, stated preferences, social willingness to pay, and budgetary ability to pay). Even if none of these methods currently enjoys consensus, it can be shown that it is possible to express the environmental damage of a single product in monetary value.

Monetizing the results of an LCA involves two operations: (1) giving a certain weight to the different impact categories; and (2) expressing these weights in a common currency. The first step, referred to as the weighting operation, always involves value judgments and some subjectivity. This step should be subject to wider public debate. Thus far, the most extensive public consultation has been conducted by the Joint Research Center of the European Commission which has proposed weighting values for the PEF method following a survey of 2,400 people drawn at random from six European countries (Germany, Italy, Spain, United Kingdom, Poland, and France) and 518 experts from forty-eight different countries.<sup>78</sup> The second step is the actual monetization, i.e., the multiplication of the single aggregate LCA score

by a factor representing a currency. For tax purposes, the first step could be assimilated to the determination of the taxable base while the second would resemble the computation of the actual tax by the application of a determined rate to that base.

From an EU perspective, it seems neither useful nor appropriate to intervene in this second step, i.e., to determine what the final amount of tax (reflecting the 'environmental price') should be in absolute terms for any amount of pollution. This amount may depend on the living standards of each region and on political choices that could be freely determined by each Member State; of course, in the framework of general principles such as neutrality and non-discrimination. An LCA, however, can transparently indicate how the preliminary steps of inventorying, characterizing, normalizing, and weighting the ecological footprint that lead to the single aggregated LCA score of each product are carried out. A standardized European or global LCA score could therefore be used as a basis for taxation and transposed into a harmonized EU framework while leaving it to the discretion of each Member State to decide on the final rate.

#### 4 THE DAMAGE AND VALUE-ADDED TAX (DAVAT) MODEL

The environmental taxes based on LCA are excise-type taxes that are a function of the physical quantity of the product and not of its price. Why then link this excise-type mechanism to the VAT that is an *ad valorem* tax? There are four reasons. The first is the broad base on which the VAT rests. It has been seen that there are many reasons – administrative, socio-economic, environmental – to broaden the base of environmental taxes and avoid limiting them to specific characteristics of isolated products. Broadening the base makes the internalization of negative externalities less complicated and more consistent while avoiding the stigmatization or unjustified protection of certain products.

The second reason is the very structure of the VAT that, by encompassing the entire process of production and marketing of products, precisely follows the cycle of polluting emissions. It is natural to rely on this existing and well-functioning structure to trace, inform, and ultimately pay for the production of negative externalities.

The third reason is that any new environmental tax suffers from its novelty. To facilitate its implementation, the most effective thing to do is to rely on a tax mechanism that is already well accepted and to which operators

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<sup>75</sup> European Commission, *Initiative on Substantiating Green Claims* (2020), [https://ec.europa.eu/environment/eussd/smgp/initiative\\_on\\_green\\_claims.htm](https://ec.europa.eu/environment/eussd/smgp/initiative_on_green_claims.htm) (accessed 21 July 2021).

<sup>76</sup> Yuka, *Eco-score: Présentation* (2021), <https://docs.score-environnemental.com/> (accessed 21 July 2021).

<sup>77</sup> R. Arendt, T. Bachmann, et al., *Comparison of Different Monetization Methods in LCA: A Review*, 12(24) Sustainability 1–39 (2020).

<sup>78</sup> A. Sala, A. K. Cerutti & R. Pant, European Commission, *Development of a Weighting Approach for the Environmental Footprint* (Joint Research Centre Technical Reports 2018), [https://ec.europa.eu/environment/eussd/smgp/documents/2018\\_JRC\\_Weighting\\_EF.pdf](https://ec.europa.eu/environment/eussd/smgp/documents/2018_JRC_Weighting_EF.pdf) (accessed 21 July 2021).



and consumers are accustomed. The adage that a good tax is an old tax is well known: an environmental tax will only improve if it can depend on the seniority of its eldest.

Finally, yet importantly, due to the fact that the potential revenue from broad environmental taxes is of high magnitude, there must be some form of compensation for adapting other indirect taxes, including the VAT. If environmental taxes are to be raised to 10% of average public revenues without crushing citizens under new charges and creating a strong negative reaction in the public opinion, the tax increase must be linked to a reduction in other tax revenues. Additionally, to make the compensation even more transparent and equally connected to production and consumption activities, it seems consistent to integrate this environmental policy reform into the very structure of the VAT.

The idea, therefore, is to add a component to the current VAT system that would not depend on the price of the products but on the LCA scores associated with them. For the purposes of this article, the authors assume that it is possible to set up a database of LCA scores for any final or intermediate product sold around the world. Timmermans and Achten<sup>79</sup> showed that it is perfectly possible to set up a consistent database of *default* scores for the 2,887 product categories listed in the Central Product Classification (CPC) established by the United Nations. The CPC is used in the Ecoinvent® LCA database to classify all goods and services that are subject to an LCA. This classification can also be used to identify items in other LCA databases. The CPC is closely correlated with the Harmonized System (HS) administrated by the World Customs Organization and the Combined Nomenclature (CN) at the EU-level.<sup>80</sup> If the LCA is subdivided into as many stages as there are invoices in the production and supply chain up to the final consumer, the default LCA scores of the different flows and intermediary products can be reported and added together at each step in the supply chain. The producers and intermediaries wishing to obtain a more accurate score than the default score can require a specific LCA for the part that concerns them. Subdividing it in this way reduces the cost of these specific LCAs.

In the event of integration of this model into a tax system, Timmermans and Achten propose adding an *in rem* tax, i.e., a tax function not of the price of the product but of its physical quantity (weight or volume) and its associated LCA score, to the traditional per-unit taxes (excises) and *ad valorem* taxes (VAT or sales taxes). This

tax model is referred to as the DaVAT. In the DaVAT system, the rate of the *ad valorem* component, i.e., the VAT or sales taxes, is gradually reduced to a relatively low and single rate eventually being called uniform value-added tax (UVAT) because it would make reduced rates useless. The new *in rem* tax based on the LCA of products, called the global damage tax (GDT), increases correlatively to the decrease of the VAT. In this way, the reduction in the price of the least polluting products subject to the VAT or sales tax is associated with an increase in the price of the most polluting products. Therefore, in the event of a strong and sustained decline in pollutant emissions – which is the objective of the DaVAT – the decrease in GDT revenues is offset by a subsequent increase in the UVAT rate. The authors also recommend extending the tax base to all goods and services particularly to avoid distortions of competition. Such a system, after the transition phase, only works with two rates (that could vary across Member States with limited EU constraints such as the fixation of minima rates as is currently the case): the uniform UVAT rate and the unique *Fp* factor multiplying the aggregate LCA score of each product. To take into account the application of specific excise duties on only certain product categories (called specific damage taxes (SDT)) that are not to be abolished despite the introduction of the GDT, a correction mechanism should be established. Those taxes may target characteristics of products that do not fall entirely or specifically within the scope of an LCA (taxes on alcohol, tobacco, sugary beverages, etc.) or characteristics that can be measured by an LCA but that a state wishes to overweight (e.g., the carbon footprint of products).

An estimation of the revenues of a tax based on LCA criteria was recently reported by Arendt et al.<sup>81</sup> on the specific case of Sweden. In Sweden, a taxation based on the Ecotax monetarization method would cost each Swede EUR 7,941 per year compared to the EUR 5,400 of VAT and the EUR 240 of carbon tax that are currently paid. This provides an idea of the potential revenue from taxes based on LCA criteria as well as the need to integrate them with existing taxes, in particular the VAT. The same type of estimate can be made from each country's household consumption expenditure and global emissions of pollutants in the LCA impact categories.<sup>82</sup> The results of such a simulation show that the revenues of an LCA-based tax can yield, on average, twenty times more than

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<sup>79</sup> B. Timmermans & W. M. J. Achten, *From Value-Added Tax to a Damage and Value-Added Tax Partially Based on Life Cycle Assessment: Principles and Feasibility*, 23(11) Int'l J. Life Cycle Assessment 2217–2247 (2018). A summary presentation of the article is provided by the European Commission DG Environment News Alert Service, *Rethinking Value-Added Tax (VAT) to Focus on Environmental Damage and Sustainability*, 516 Sci. Env't Pol'y (2018).

<sup>80</sup> World Customs Organization, Permanent Technical Committee, *Product Identification*, PC0331E1a (2013), <http://www.wcoomd.org/en/topics/facilitation/resources/permanenttechnical-committee/~media/8E263790AC234D018554E2C6BD99367E.ashx> (accessed 21 July 2021); Taxation and Customs Union, *The Combined Nomenclature* (2020), [https://ec.europa.eu/taxation\\_customs/business/calculation-customs-duties/what-is-commoncustoms-tariff/combined-nomenclature\\_en](https://ec.europa.eu/taxation_customs/business/calculation-customs-duties/what-is-commoncustoms-tariff/combined-nomenclature_en) (accessed 21 July 2021).

<sup>81</sup> *Ibid.*

<sup>82</sup> A. W. Sleswijk & M. Huijbregt, *LCA ReCIPE Normalisation Factors Revised September 2010*, <https://www.rivm.nl/documenten/lcarecicenormalisation2000factorsrevised2010> (accessed 21 July 2021).

those of a carbon tax comparable to Sweden's and achieve 50%, on average, of the overall revenue of existing consumption taxes. These estimations are in accordance with the recommendations of the Roadmap to a Resource Efficient Europe<sup>83</sup> to increase environmental taxes to at least 10% of average public revenues. While carbon taxes tend to focus only on certain products and sectors, an LCA-based tax encompasses a much wider range of goods and services. This broadening of the focus and taxable characteristics enables addressing environmental problems more effectively, particularly by preventing pollution displacement. Part of the revenues collected through these types of taxes should be used for redistribution and support for groups that are disadvantaged by the rising price of the most polluting products. The revenue from such taxes can also be used to finance sustainable infrastructures inside and outside the country as foreseen, for example, by the Green Climate Fund.

## 5 LEGAL IMPLICATIONS OF ADOPTING A DAVAT AT THE EU LEVEL

Transforming the VAT into a damage and VAT would certainly induce a major political overhaul of the current HS. However, from a legal perspective, this does not seem to raise particularly risky issues. The legal basis in the treaty would at least partly remain the same and would 'only' require limited changes of the VAT directive.

### 5.1 Hybrid Nature of the DaVAT

The legal and institutional implications of transforming the current VAT into the proposed system are significant but not unsurmountable. However, to understand the changes that this reform would require, it is important to first clearly determine the exact nature of such a tax, which could be considered as a hybrid tax on consumption, mixing elements belonging to the VAT/GST-like taxes, on the one hand, and excise duties on the other hand.

A tax partly based on LCA criteria has the *technical* characteristics of an excise duty (a function of the physical quantity of the product and the associated material flows) but also the *structural* characteristics of the VAT: broad scope and taxable base; potential revenue comparable to that of the VAT; amount split according to the different stages of production; transformation and circulation of the good or service; and neutrality of the tax in relation to the number and type of transactions, in relation to taxpayers (protected from the tax by the deduction mechanism), and in relation to borders (it is not a customs tax). The concept of neutrality, however, is refined since, although the amount

of the LCA-based tax is independent of the length of the production and transmission chain, it varies according to the material flows associated with this chain, i.e., their environmental, health, and resource impacts. Another feature of an LCA-based tax is that it extends the responsibility regime of the VAT. In the VAT system, although the tax is ultimately borne by only the final consumer, it is collected by all intermediaries leading to that final sale. In a partly LCA-based taxation system, producers and intermediaries are not only responsible for collecting the tax, but they also benefit from the information that makes them more aware of the damage associated with their activities. The tax is no longer just a charge but also an information service. An economy where every producer, intermediary, and consumer is informed about the impacts associated with its activities and is interested in minimizing them in order to reduce the final price of the product or to increase its profit margin is probably better able to fight environmental problems.

### 5.2 Legal Basis and Changes to the VAT Directive

Article 113 TFEU would be a valid taxable basis considering that the modified tax would remain an indirect tax and have, beyond any doubt, similar effects to (cross-border) trade and the achievement of the internal market. Considering the specific environmental dimension of the reform, Article 192 TFEU that allows the EU to adopt environmental taxes could be added. However, in both cases, unanimity of the EU Member States would be required, which means that any of them could block the reform and, considering its importance, opposition to it whether based on ideological or practical reasons (estimation of revenues foregone), or a mix of both, is certainly not an occurrence that should be underestimated.

Apart from the rates, the proposal indeed does not imply major changes regarding the other structural elements of the VAT systems, such as the definition of taxable persons, the identification of taxable transactions, the localization rules, or the right to deduct. For the sake of coherence, the revision or suppression of certain exemptions such as those applying to highly environmentally damaging products like aviation and maritime fuels could be envisaged. However, they are not necessary to make the system work.

Concerning the administrative aspects, they would necessitate the set-up of a database – jointly managed by the EU Commission and the Member States' tax authorities – linking all products and services with their LCA score (per quantity), which would require a modification of the regulation on administrative

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<sup>83</sup> European Commission, *supra* n. 7.

cooperation.<sup>84</sup> The CN<sup>85</sup> – used for customs purposes – would serve as a starting point with the possibility of distinguishing the environmental performance of products within the same product category. Invoicing software of taxable persons should receive access to this database in order to determine the correct LCA score for each good or service. Many small businesses contribute little or not at all to increasing the LCA score of their products because they are not involved in the production of the raw material and the transformation process. For these companies, the refinement of the LCA score could be achieved in an automated manner and at no cost on the basis of the existing data of their VAT declaration (specifically, the nature and quantity of products that are purchased and sold). This system could be applied whenever the taxable person is not required by an existing regulation to produce an environmental product declaration. At the same time, smaller businesses would gain access to valuable information regarding the ecological footprint of products that they sell which could help them to develop business strategies based on sustainable criteria.

The VAT directive provisions that would need the most substantial change would be those dealing with the computation of the rates. The DaVAT model proposes to reduce *ad valorem* taxes to a very low UVAT rate. However, European rules do not allow going below a standard VAT rate of 15%. The VAT directive should be modified to reflect the double-pronged approach of the DaVAT; besides a general rate that is applied to the value of the goods or services of a taxable transaction (generally reflected in its price), a specific rate – to be determined by each Member State with a minimum<sup>86</sup> – would apply to the LCA score of the product. As to the list of reduced rates, they would continue to apply to the traditional VAT component of the tax in the transition period. However, since the weight of this component in the total tax would progressively diminish, the question would arise whether such a list would remain relevant.

A more difficult question would be whether a second list of goods and products should be added to the directive that would allow Member States to provide for tax reductions on the LCA component of the tax. That would not accord with the general philosophy of the reform and is likely to create disparities leading to potential tax arbitrage within the EU. However, such an instrument could be necessary at least during the transitional period. It could mitigate the negative effects of a non-discriminated increase of the overall tax burden on highly polluting goods consumed by lower-income households for which there is no ready-to-use substitute or simply to achieve a political consensus. In any case, this list should be as short as possible, and the opportunity to instead use targeted subsidies to keep revenue losses and distortions in production and consumption habits under control should be carefully weighted.

Another alternative could be to compile a list with minimum rates taking into account all existing taxes. It could make reference to the implicit tax rate on consumption (ITRC). The ITRC is the ratio between consumption taxes and the final consumption expenditure of private households on the economic territory of the country.<sup>87</sup> It covers all consumption taxes, i.e., not only the VAT but also consumption taxes on energy, excise duties on alcohol and tobacco, and all remaining consumption taxes included in the national tax list. In 2017, the average value of the ITRC in the EU-27 was 20.7%. The lowest values were 15.9% (Spain), 16.1% (Portugal), and 17.5% (United Kingdom). The highest values were 31.1% (Hungary), 30.7% (Denmark), and 28% (Sweden).<sup>88</sup>

Taking stock from a 2018 Commission proposal aiming at providing more flexibility to Member States regarding reduced VAT rates<sup>89</sup> by establishing minimums not per product but on a weighted average, a requirement of a minimum for the ITRC could be proposed. Such a reform would not only contribute to extending the possible applications of the DaVAT system in Europe. It would also help to harmonize the European system of all

## Notes

<sup>84</sup> Council Regulation (EU) No 904/2010 of 7 October 2010 on Administrative Cooperation and Combating Fraud in the Field of Value Added Tax, OJ L 268/1 (12 Oct. 2010), at 1.

<sup>85</sup> Regulation (EU) No 952/2013 of the European Parliament and of the Council of 9 October 2013 Laying Down the Union Customs Code, OJ L 269/1 (10 Oct. 2013), at 1–101; Council Regulation (EEC) No 2658/87 of 23 July 1987 on the Tariff and Statistical Nomenclature and on the Common Customs Tariff, OJ L 256/1 (7 Sept. 1987).

<sup>86</sup> Timmermans and Achten also propose an alternative model for which there would be some form of harmonization of rates. The idea is to multiply the Fp factor multiplying the LCA score of each product, which is specific to each country, by another factor, Fca (Currency area adjustment factor, dimensionless), which is the same for all Eurozone countries that wish to do so. The Fca factor can be very close to 1, e.g., equal to 1.05. Multiplying Fc by Fca modifies all GDTs to which Fca applies to the same extent. For instance, if Fp = 100 in State A and Fp = 110 in State B, A and B can decide to jointly increase their respective Fp by applying the same adjustment factor to it, say Fca = 1.05. This keeps the ratios constant between the Fps of both states and possibly supports a common environmental policy or strategy in international negotiations on environmental matters. The principle may be reminiscent of the European currency snake where the evolution of currencies was done in concert by maintaining stable ratios between them with maximum oscillations of + or - 2.25%. Timmermans & Achten, *supra* n. 79.

<sup>87</sup> European Commission, DG Taxation & Customs Union, *Taxation Trends in the European Union, Data for the EU Member States, Iceland and Norway* 270 (2019), [https://ec.europa.eu/taxation\\_customs/taxation-1/economic-analysis-taxation/taxation-trendseuropean-union\\_en](https://ec.europa.eu/taxation_customs/taxation-1/economic-analysis-taxation/taxation-trendseuropean-union_en) (accessed 21 July 2021).

<sup>88</sup> European Commission, DG Taxation & Customs Union, *Implicit Tax Rates* (2017), [https://ec.europa.eu/taxation\\_customs/taxation-1/economic-analysis-taxation/data-taxation\\_en](https://ec.europa.eu/taxation_customs/taxation-1/economic-analysis-taxation/data-taxation_en) (accessed 21 July 2021).

<sup>89</sup> European Commission, VAT: *More Flexibility on VAT Rates, Less Red Tape for Small Businesses* (18 Jan. 2018), [https://europa.eu/rapid/press-release\\_IP-18-185\\_en.htm](https://europa.eu/rapid/press-release_IP-18-185_en.htm) (accessed 21 July 2021); L. Puccio, *More Flexible VAT Rates*, European Parliamentary Research Service (2018), [http://www.europarl.europa.eu/RegData/etudes/BRIE/2018/625137/EPRS\\_BRI\(2018\)625137\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2018/625137/EPRS_BRI(2018)625137_EN.pdf) (accessed 21 July 2021).

consumption taxes, including excise duties, as previously proposed by the Commission.<sup>90</sup>

### 5.3 Potential Violations of Other EU Rules

The addition of an environmental component to the VAT does not contradict Article 401 of Directive 2006/112/EC (former Article 33 of Directive 77/388/EEC) which limits the competence of Member States to introduce domestic taxes on transactions already subject to the VAT. As the authors suggest, the proposed changes would indeed be incorporated in the VAT directive, which would somehow alter the main characteristics of the tax at the EU level. However, even assuming that some Member States would decide to introduce a general environmental excise duty inspired by the DaVAT model on their own initiative, a violation of Article 401 appears unlikely. As interpreted by the court, such a prohibition is limited to general turnover taxes possessing all of the characteristics of a VAT. In this case, the environmental tax in question here would not be proportional to the price of goods and services.<sup>91</sup> It could be added that such a tax would not raise compatibility issues under Article 110 TFEU prohibiting discriminatory internal taxation. The tax would not indeed favour domestic products proportionately more than imported products<sup>92</sup> since the same assessment criteria are applied to domestic and foreign products, and an imported product would not necessarily be considered as more polluting than one that is domestic.

## 6 A SECOND – OR TRANSITIONAL – BEST: A GREEN VIRTUAL VAT

Taxation is the prerogative of each state, and not all countries share the same constraints and priorities. It is therefore unlikely that all of them will adopt a new consumption tax system integrating environmental criteria on the DaVAT. However, the concept could be used for other purposes. The LCA could, for example, serve to reform or adopt targeted and refined excise duties at the EU or national level. In that case, several of the technical obstacles listed above would disappear.

Nevertheless, to retain the general dimension of the DaVAT, the mechanism could be used within the EU as

a potent information tool to provide environmental information rapidly and free of charge everywhere in the world in the form of a virtual tax concurring to the formation of a virtual ecological price reflecting environmental damage.

In its simplest version, this information tool could deliver the environmental score of each good or service in the form of the following message:

*How much more would I have to pay for this product if the world moved in a more sustainable direction?*

The term 'sustainable' is directly borrowed from the 'sustainability' scenario S1 selected by the Intergovernmental Panel on Climate Change (IPCC) to avoid exceeding 1.5° of global warming.<sup>93</sup> This scenario foresees an upward evolution until 2,100 of the price of the ton of carbon or the quantity of any other greenhouse gas equivalent to the global warming potential of one ton of CO<sub>2</sub>. Suppose the LCA values for characterization, normalization and weighting – that is, the relative weight of each impact category – are fixed. In that case, the evolution of the price of all of the other externalities measurable by LCA can be deduced from the increase in the price of greenhouse gases.<sup>94</sup>

The virtual price is helpful. A price signal can produce effects even if the price is not actually paid. In this aspect, the signal is a form of 'green nudge'.<sup>95</sup> It does not modify the product's price but tends to change consumer behaviour in a more sustainable direction without eliminating their possibilities of choice. The virtual price is not based on an existing regulation either but on the will shared by many to pay differently for products according to their environmental impacts. In this respect, it is similar to the market instrument known as a 'voluntary price signal'.<sup>96</sup> It differs, however, in that the signal is not given by an eco-label encouraging people to pay more for the least polluting products. Here, the signal is provided by a price proportional to the negative externalities caused by the product. Stated differently, the strength of the signal lies in the fact that the price given as information could take the form of an effective Pigouvian tax. The effectiveness of the message is all the greater if the signal follows the entire value chain; is based on clear, transparent criteria

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<sup>90</sup> European Commission, *Proposal for a Council Directive Instituting a Process of Convergence of Rates of Value Added Tax and Excise Duties*, COM(87) 324 final (18 Sept. 1987), <https://eur-lex.europa.eu/legalcontent/GA/TXT/?uri=CELEX%3A51987PC0324%2801%29> (accessed 21 July 2021).

<sup>91</sup> See CJEU, 26 July 1997, Joined Cases C-370/95 to C-372/95, *Careda and Others*, ECLI:EU:C:1997:327, paras 25 and 26.

<sup>92</sup> See e.g., CJEU, 17 Sept. 1997, Case C-28/96, *Fricarnes*, ECLI:EU:C:1997:412. On Art. 110 TFEU, Barnard, *supra* n. 54, at 50–67.

<sup>93</sup> IPCC, *Global Warming of 1.5°C. Special Report* 110–111, 152–153 (2018), <https://www.ipcc.ch/sr15/> (accessed 21 July 2021).

<sup>94</sup> More details in Timmermans & Achten, *supra* n. 79.

<sup>95</sup> 'A green nudge is a change in any aspect of the choice architecture that is intended to alter people's behavior in a predictable way and result in a reduction of a negative external effect without forbidding any options or significantly changing the economic incentives' (F. Carlsson, C. Gravert, et al., *Nudging as an Environmental Policy Instrument*, 756 Working Papers in Economics from University of Gothenburg, Department of Economics, 2 (2019), <https://gupea.ub.gu.se/handle/2077/59896>) (accessed 21 July 2021)).

<sup>96</sup> 'Voluntary price signals consist in schemes whereby producers send a signal to consumers that environmental impacts are positive (in relative terms) and consequently gain a premium on the market price'. (R. Pirard, *Market-Based Instruments for Biodiversity and Ecosystem Services: A Lexicon*, 19/20 Envtl. Sci. & Pol'y 65, 19–20 (2012)).



that is valid for a broad base of products; and relies on a broad consensus both from the methodological point of view (use of the standardized LCA method<sup>97</sup>) and from the perspective of the goal that is set (not exceeding 1.5° of global warming).<sup>98</sup>

Finally, the fact that the price is only virtual and there is no obligation to pay it does not prevent it from being used as a fundraising tool at multiple levels, including local initiatives. Indeed, nothing prevents individuals, an association, or a municipality from voluntarily paying or proposing to pay the totality or a part of the indicative price mentioned in the application. The funds that are collected could be allocated as they see fit, for example, to an environmental project. Thus, the proposal presented here is not a simple tax. It is meant to be informative, collaborative, favouring local initiatives and public uses with, in the latter case, a progressive and redistributive potential.

## 7 CONCLUSION

The discussion around adding an environmental dimension to the VAT cannot limit itself to a debate about reduced rates. A bolder – and more efficient – proposal is to add a pollution-based component to the current price-based VAT, giving a monetary weight to responsible consumption choices. This element would have the technical characteristics of an excise duty while adopting the structural characteristics of the VAT. It would be calculated on the basis of the physical characteristics of the products involved and not their price, would be paid at each stage of the production and marketing processes of the goods and services, and would only actually be paid by the final consumer. Such a system would require only two rates: one applied to the price of the goods and services and one applied to their environmental score. The environmental score of goods and services would be established according to a consistent and recognized LCA approach.

The multi-stage process of VAT collection is particularly suited to the life cycle approach since both approaches integrate all phases of production, marketing, and consumption. It leads to a broadening of the base of environmental taxes both in terms of the economic activities that are concerned and the polluting substances that are targeted, which meets a double need for consistency in

environmental action and non-discrimination in taxation. Linking environmental taxes to the VAT also makes it possible to rely on a long-standing and well-accepted tax that generates revenue similar to that which can be generated by broad-spectrum environmental taxes as considered here. A mechanism for offsetting the increase in the new VAT component with a decrease in the traditional component can thus be envisaged so as not to increase the overall burden of the indirect tax.

The neutrality of the VAT, which is one of its most important characteristics, would not be affected in that goods and services with the same environmental characteristics would be taxed in the same way regardless of the number of intermediaries in the production and distribution chain. The neutrality of the tax regarding its field of application, i.e., the fact that it encompasses all stages of production and distribution as well as all services, could even be increased under the new system compared to the current situation. This is because exemptions and special regimes would be much more difficult to justify under environmental considerations. However, the new VAT would no longer be neutral between goods and services which, although similar concerning their consumption purpose, would differ relating to the environmental impact of their modes of production and use of the product. This is justified from an economic point of view by the requirement to internalize negative externalities and from a political perspective by the environmental objectives that the EU has set itself. It could be even be argued that, in the current context of increasing awareness of the environmental impact of consumption choices, the actual discrimination is treating alike goods and services that differ in their levels of pollution, as the VAT system does.

The legal analysis shows that the adoption of a hybrid VAT requires an amendment to the VAT directive which can be based on Articles 113 and 192 TFEU and raises no major technical issues of assessment and collection. The obstacles to the adoption of such a tax would be rather political. Therefore, as a second best, a virtual form of the instrument is also proposed. Under this alternative, the tax is not actually paid but is delivered for information purposes to all of the participants in the production and consumption chain with an invoice mentioning the VAT to be paid and also the green VAT that should be paid if the environmental damage had been

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<sup>97</sup> The use of a life cycle analysis is common in voluntary approaches to information on the environmental quality of a product and even mandatory in the case of Environmental Product Declarations (EPD). See N. Minkov, L. Schneider, et al., *Type III Environmental Declaration Programmes and Harmonization of Product Category Rules: Status Quo and Practical Challenges*, 94 J. Cleaner Production 235–46 (2015); A. Lehmann, M. Finkbeiner, et al., *Policy Options for Life Cycle Assessment Deployment in Legislation*, in *Life Cycle Management. LCA Compendium – The Complete World of Life Cycle Assessment* 213–224 (G. Sonnemann & M. Margni eds, Springer Netherlands 2015).

<sup>98</sup> Each step that is necessary for a monetarization based on an LCA should be clearly distinguished: inventory of polluting emissions, characterization of the values obtained, normalization of the results, weighting of these results and, finally, the monetarization step itself. The idea is to present the methodological choices inherent in each of these stages with maximum transparency, including the subjective weighting stage, and to submit these choices to a wider discussion. It must also be clearly communicated to the public that the conversion of LCA data concerning a product into a price, even a virtual price, associated with this product does not allow the environmental performance of the product in question to be expressed. Indeed, the concept of environmental performance is multidimensional while a price only has one dimension. As a result, in accordance with international standards, the single monetarized score to which the LCA results are reduced cannot be used for comparative purposes, particularly for comparative advertising. See ISO 14044, *supra* n. 73, 4.4.5.

taken into account. Even if such an alternative of a virtual tax appears to be less effective than a genuine tax, it may prove to be an efficient tool for raising awareness in the public about the risks caused by the destruction of our environment. There is little doubt

that coercion alone will not help to achieve the sustainability objectives that Europe has set itself and that it should resort to one of its more abundant and unlimited resources: education. And a virtual green VAT can certainly act as an enlightening educational tool.