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A COMPARATIVE ANALYSIS IN VEHICLE TAXATION[1]and[2]

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Profound differences among OCDE and EU Member State tax systems. 6.2. A necessary green reformulation of vehicle registration and road taxes: the "polluter pays" principle. 6.3. Tax quantification based on emitted CO_2. Bibliography.

1 INTRODUCTION. FRAMEWORK

The taxation policies governing vehicles have emerged as a pivotal area of study, intersecting the realms of law, economics and policy formulation.

From a legal perspective, the complexity of regulatory frameworks on vehicle taxation necessitates comprehensive analysis. Moreover, the economic implications of vehicle taxation are multidimensional. Taxation policies directly impact the automotive industry, transportation market dynamics and government income sources.

The actual level and design[4] of such "national tax regimes is therefore of specific interest for national tax authorities as well as for car producers and citizens and enterprises owning and using a car"[5]. This illustrates the difficulties individuals and businesses encounter, as well as the uncertainty regarding their rights and duties in this field[6].

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4 Algirdas Šemeta, Commissioner for Taxation, Customs, Anti-fraud and Audit, said: "with over 3 million cars moved between Member States every year, the number of tax obstacles they still encounter is unacceptable. If Member States cannot agree on common car taxation rules, they should at least respect basic EU principles to ensure that citizens and businesses do not suffer higher taxes or discrimination. Today's Communication spells out basic rules that must be respected and offers good advice to improve the Single Market for passenger cars."

5 Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee, Strengthening the Single Market by removing cross-border tax obstacles for passenger cars, Brussels, 14.12.2012 COM (2012) 756 final.

6 More than 230 million passenger cars circulate on European roads. Each year, more than 13 million new passenger cars are registered in the European Union, and about 3 million used cars are transferred between Member States, of which up to 1 million are linked to people migrating from one Member State to another (Source: Eurostat, ACEA and Öko-Institut).

The fiscal regulation in the OECD and in the European Union demonstrates a diverse range of policies aimed at achieving economic and environmental objectives. While national governments retain autonomy over their taxation systems, EU Directives and guidelines play a crucial role in shaping the comprehensive framework. In recent years, there has been an increasing awareness of the importance of implementing environmental policies in the vehicle sector in order to reduce CO_2 emissions and other polluting particles[7].

Reducing vehicle pollution is crucial for protecting public health, mitigating climate change and promoting sustainable development. The European Commission, through its numerous initiatives, has been alerting us of the necessary adoption of CO_2 emission reduction measures. The automotive industry is a priority in this line of action as vehicles account for approximately 12% of carbon dioxide emissions[8]. Taxation has increasingly been used over the last years to influence customer behaviour and encourage the purchase of low polluting or more fuel-efficient vehicles[9].The objective of the European Green Deal[10] is to transform the Union's economy and rethink its policies, particularly in the field of transport and mobility. Indeed, the EU accounts for a quarter of greenhouse gas emissions, and that share is on the rise (see GARCÍA MARTÍNEZ, 2021, p. 94).

Overall, vehicle taxation policies play a crucial role in shaping consumer behaviour and promoting the transition towards a more sustainable and environmentally friendly transportation system.

[7] As Zahedi and Cremades (2012) pointed "passenger cars are a major source of CO2 emissions and are, therefore, of particular relevance to the EU's environmental objective, namely to meet its environmental commitments under the Kyoto Protocol".

[8] See Communication from the Commission to the Council and the European Parliament. Results of the review of the Community Strategy to reduce CO_2 emissions from passenger cars and light-commercial vehicles (COM (2007) 19 final).

[9] To reduce "these emissions, many countries have adopted tighter fuel economy and CO2 emissions rate standards for passenger vehicles, as well as other policies such as plug-in vehicle subsidies" (CERRUTI; ALBERINI; LINN, 2017, p. 1).

[10] Communication from the Commission to the European Parliament, the European Council, The Council, The European Economic and Social Committee and the Committee of the Regions: The European Green Deal. COM/2019/640 final.

This work aimed to expose and analyse a range of comparative vehicle taxation experiences that have taken place within the European Union. We highlight the essential lines followed by Member States in this domain and contextualise them by presenting concrete cases. Studying the regulatory landscape of vehicle taxation in each Member State is essential for promoting coherence and alignment in taxation policies across the European Union. In this paper, the approaches taken in vehicle taxation by OECD countries will also be discussed.

1.1 VEHICLES: A MANIFESTATION OF WEALTH GENERALLY TAXED BY EU MEMBER STATES

Vehicles serve as tangible expression of economic capacity, subject to taxation by EU Member States. This taxation practice reflects individuals purchasing power and financial resources. Consequently, Member States employ vehicle taxation within their fiscal frameworks to generate revenue and achieve equitable distribution of tax burdens.

It is worth noting, first of all, that the vehicle sector constitutes a reflection of financial circumstances and is widely taxed in EU Member States. Unsurprisingly, the traditional tax burden excess borne by vehicles has been highlighted in most EU countries (YEBRA MARTUL-ORTEGA, 1993). With the exception of Estonia, all Member States levy taxes on vehicles, which usually fall into two categories.

1.2 TWO BROAD CATEGORIES: VEHICLE OWNERSHIP TAXES AND REGISTRATION TAXES

EU Member States levy different taxes on vehicles to regulate ownership, operation and environmental impact. These include registration taxes based on vehicle type and emissions, annual circulation taxes, fuel taxes, toll and environmental levies. Tax structures differ among Member States and are subject to evolving regulations.

Two major categories regarding the different types of taxes borne by vehicles in the European Union can be highlighted. The first corresponds to taxes levied upon registration or the first registration of vehicles.

In the European Union there is a lack of harmonization regarding car registration taxes and circulation taxes. This disparity can lead to instances of double taxation and contribute to the fragmentation of the Single Market for passenger cars.

These categories are equivalent to the Special Tax on Certain Means of Transport in Spain[11]. These taxes are indirect and instant, except in some cases such as Belgium, where the tax is levied each time there is a change of ownership.

They are not particularly oriented towards the protection of the environment. In fact, they may even have unexpected negative consequences. Indeed, by discouraging the purchase of new vehicles, the system encourages consumers to keep those that are already in their possession, which are less clean and more polluting. They thus have a negative impact as they contribute to increasing harmful emissions (ROSEMBUJ, 1995, p. 140).

The second category includes taxes levied on vehicle ownership or use (road taxes). They resemble Spain's local Tax on Mechanically Propelled Vehicles[12].

1.3 HUGE VEHICLE TAXATION INTERSTATE DISPARITIES

The first point worth highlighting is the tremendous divergence found in the vehicle taxation sector as well as the variety of lines of action followed by the Member States.

Most Member States have introduced the category of taxes

[11] Law 38/1992, of 28 December on Excise Taxes. Articles. 65-74, Title II, of Law 38/1992.

[12] Consolidated Text of the Law Regulating Local Finances (Royal Legislative Decree 2/2004 of 5 March). Articles 92-97.

linked to the use or ownership of vehicles[13].

Member States that levy taxes on the ownership or use of vehicles
Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Slovak Republic.

The same does not apply, however, to the Registration Tax: up to eleven Member States do not require this Tax, and strikingly, some countries, e.g., Germany, in which vehicles play a major economic role[14] have not established the tax.

Member States that levy Registration Taxes
Austria, Belgium, Croatia, Cyprus, Denmark, Finland, France, Greece, Ireland, Italy, Lithuania, Malta, the Netherlands, Portugal, Slovenia, Spain.

In addition, no homogeneity can be observed in the tax base configuration: Member States take different elements into account when designing the tax[15]. The Registration Tax thus considers the value of the vehicle, the purchase price, the type of fuel, the type of vehicle, CO_2 emissions[16] (WLTP[17]), NOx emissions, engine

[13] Taxation of the ownership of a vehicle "is applied in all European countries. There are, however, large differences between vehicle categories in the extent by which ownership taxes (also called circulation taxes) are applied. Passenger cars and motorcycles are taxed in most European countries" (EUROPEAN COMMISSION, 2019, p. 44).

[14] See https://ec.europa.eu/taxation_customs/tedb/taxSearch.html and The Automobile (2021)

[15] As it is understood "from the general practices of the EU, however, there is no common set of rules for all member countries, but the rules are generally related to CO_2 emissions and weight." (TUNÇ, 2019, p. 75).

[16] Since 1992, the European Union has imposed increasingly strict limits on emissions from cars through what are known as 'Euro' standards.

[17] In September 2017 a new official EU-wide emissions testing system was introduced for new car models, including a new laboratory test called the Worldwide Harmonised Light Vehicle Test Procedure (WLTP) (see CALVO VÉRGEZ, 2021).

displacement, power, etc[18].

The same applies to periodic taxes on the ownership or circulation of vehicles, where States include a wide range of elements such as engine power (kW), CO_2 emissions (WLTP), type of fuel, age of the vehicle, fuel consumption, weight of the vehicle, horses (hp), year of manufacture, etc., in order to determine the tax.

In the case of periodic ownership and road taxes, definitions highly differ regarding the tax base, tax rates, deductions and other elements implemented by each Member State. From a quantitative perspective, the amounts of tax collected also vary widely (RAMOS PRIETO; TRIGUEROS MARTÍN, 2010, p. 293).

2 PROPOSAL FOR A COUNCIL DIRECTIVE ON TAXES ON PASSENGER CARS OF 5 JULY 2005

The current vehicle taxation framework within the European Union is highly intricate, given the complexity of systems employed across Member States, which often vary significantly from one country to another. Moreover, the efficacy of levied taxes in targeting the most environmentally harmful vehicles or those posing potential risks to public health is not always optimized.

The European Commission sought to put some order into this complex and uneven panorama[19] through a series of preparatory[20]

[18] In Europe "a heterogeneous range of national vehicle taxation systems exists in parallel, varying both through taxation components in place (purchase subsidies and registration taxes at point of sale, annual ownership taxes, company car taxes) and through the parameters determining the tax burden (CO2, engine power, engine displacement, electrical driving range, vehicle weight, vehicle list price, fuel type)" (HAUFF; PFAHL; DEGENKOLB, 2018, p. 2).

[19] Directive 1999/62/EC of the European Parliament and of the Council of 17 June 1999 on the charging of heavy goods vehicles for the use of certain infrastructures.

[20] Communication from the Commission to the Council and the European Parliament Taxation of Passengers Cars in the European Union. Options for action at national and Community levels. Brussels, 6-9-2002 [COM (2002) 431 final].

works[21], which culminated in the presentation of a Proposal for a Council Directive on taxes on passenger cars of 5 July 2005 [COM (2005) 261 final] (see HERRERA MOLINA, 2007).

The proposal contained a number of significant new features and was presented with the aim of improving the functioning of the internal market and reducing CO_2 emissions from passenger cars (MARTÍNEZ LÓPEZ, 2007, p. 237). As one understands from the Explanatory Memorandum itself, the draft directive sought to remove tax obstacles to the transfer of passenger cars from one European country to another by restructuring the EU member states' tax systems applicable to vehicles[22].

The first measure to be contemplated in the Proposal for a Directive was the total elimination of vehicle registration taxes. The Commission considered that they constituted an obstacle to the free movement of motor vehicles in the internal market and adversely affected the competitiveness of the European automotive sector. These taxes can create obstacles to the free movement of people and fragment the market for second-hand vehicles, causing possible situations of double taxation in cases where citizens change their domicile from one European country to another, or when introducing a second-hand car from another Member State into their country.

[21] Communication from the Commission to the Council and the European Parliament - A community strategy to reduce CO2 emissions from passenger cars and improve fuel economy COM (95) 689 final.

[22] The European Commission has displayed particular concern regarding the automotive sector through various initiatives. The Commission Communication, adopted on 14 December 2012 (COM (2012) 756 final) and accompanied by press release IP/12/1368, serves to elucidate EU regulations which Member States must adhere to in the application of car registration and circulation taxes. Additionally, the Commission provides recommendations aimed at enhancing the Single Market, particularly in mitigating instances of double taxation for vehicles when individuals relocate between Member States and eliminating barriers to cross-border car rentals. Addressed to the European Parliament, the Economic and Social Committee, and the Council, this Communication is supplemented by a Commission Staff Working Document (SWD (2012) 429 final, 14 December 2012), offering an overview of primary legal considerations pertinent to vehicle taxation and the extent of protection afforded to EU citizens and businesses under EU law and the jurisprudence of the Court of Justice of the EU.

Therefore, the Proposal established a prohibition for Member States to introduce the system and planned its gradual elimination over a five-to-ten-year transitional period (until the 1 January 2016). In this sense, a reimbursement system in order to eliminate double taxation during the transition period was also proposed until the total elimination of Registration Taxes. This mechanism was designed to enable the Member State of registration to reimburse the residual amount of the tax. Discriminatory treatment occurs if the charge imposed on used vehicles from other Member States[23] exceeds the residual tax included in the cost of a similar vehicle registered for the first time in the State of destination of the vehicle (IGLESIAS CASAIS, 2008, p. 120).

The Directive Proposal was in favour of incorporating environmental elements into existing Registration Taxes (see CORNEJO PEREZ, 2008, p. 3-30) – according to the number of CO_2 grams emitted per kilometre per car (Art. 13) – until the Sates' total elimination of Registration Taxes became effective. This measure is designed to prevent the use of estimation tables and the need to perform a technical examination of the vehicle at the moment of registration (IGLESIA LEMA, 2010, p. 173).

As for the annual road taxes, the European Commission was inclined to maintain them, although it did not require Member States to establish a vehicle ownership or road tax. A weakness of the directive proposal was that it did not impose the introduction of road taxes, nor did it indicate minimum amounts (HERRERA MOLINA, 2007, p. 80). The Proposal for a Directive did aim at introducing a link between CO_2 emissions and the road tax basis, which should take into account the number of grams of carbon dioxide per

[23] See ECJ European Commission v Ireland, 19 September 2017, Case C-552/15, ECLI:EU:C2017:162. The European Court of Justice has ruled against Ireland over whether operators importing cars from Northern Ireland should have to pay the full amount of Vehicle Registration Tax up front, even if the vehicle was only being leased for a limited period. The Court ruled that Ireland was in breach of EU law by imposing an obligation to pay the full amount of VRT up front. The judgment concluded: "Those measures... have the effect of making the hiring and leasing of vehicles that come from other member states more difficult than the hiring or leasing of vehicles from undertakings established in Ireland".

kilometre emitted by each car. The total tax revenue from annual road taxes linked to CO_2 emissions was to represent at least 25% as of 31 December 2008, and 50% as of 31 December 2010.

As the Council of the European Union acknowledged, the Member States agreed to implement measures aimed at reducing CO_2 emissions from passenger cars[24], but that agreement did not lead to the establishment of a Community initiative in this domain[25].

The draft directive was withdrawn and was not ultimately implemented, although it has had an impact on the line followed by the Member States concerning vehicle sector taxation, as we will now proceed to analyse[26].

3 VEHICLE REGISTRATION TAX TRENDS FOLLOWED BY MEMBER STATES

As mentioned, the Proposal for a Directive prohibited the introduction of new registration taxes until Member States eliminated them in their entirety. The transitional measures indicated in the Proposal included the incorporation of environmental elements in the taxes. As a result, three general trends followed by the different States can be distinguished according to their greater or lesser observance of the guidelines contained in the Proposal.

3.1 MEMBER STATES THAT DO NOT REQUIRE VEHICLE REGISTRATION TAXES

Firstly, a significant group of Member States do not require these taxes or have abolished them along the lines of the Proposal for

[24] Emissions of carbon dioxide (CO_2) have been targeted "by the European Commission since 2007 and the EU has put in place a comprehensive legal framework to reduce CO_2 emissions from new light duty vehicles as part of its efforts to ensure it meets its greenhouse gas emission reduction targets" (https://www.oecd-ilibrary.org/sites/d5115edf-en/index.html?itemId=/content/component/d5115edf-en#section-d1e44810).

[25] See Session n. 2.828 of the Council of the European Union. 13/11/2007. Brussels.

[26] See Official Journal of the European Union. 7-3-2015.

a Directive. As noted in paragraph 1.3, up to eleven Member States have not introduced registration taxes.

3.2 MEMBER STATES THAT DO NOT TAKE ENVIRONMENTAL ELEMENTS INTO ACCOUNT. TAXATION DEPENDS ON TECHNICAL ELEMENTS OF THE VEHICLE

The best illustration is Italy, which continues to base its registration tax – "*Imposta Provinciale di Trascrizione (IPT)*" (D. L 446/1997, 15-12-1997) – on the mechanical elements of the vehicle, using technical parameters such as engine power and vehicle type.

IMPOSTA PROVINCIALE DI TRASCRIZIONE
DECRETO LEGISLATIVO 446/1997, DE 15 DE DICIEMBRE

Type/horsepower	Amount IPT (€)
A. Motor vehicles ≤ 53kW buses and road tractors ≤ 110kW	150.81
B. Motor vehicles > 53kW	3.5119/kW
C. Buses and road tractors > 110kW	1.7559/kW
D. Motor vehicles to carry goods/tonnes	
≤ 0.7	199.35
> 0.7–1.5	290.25
> 1.5–3.0	326.40
> 3.0–4.5	380.63
> 4.5–6.0	452.93
> 6.0–8.0	519.56
E. Trailers to carry goods/tonnes	
≤ 2.0	265.98
> 2.0–5.0	356.36
> 5.0	452.93
F. Trailers to carry passengers (seats)	
< 15	229.82
16–25	253.58
26–40	302.13
> 40	362.55

Although this is the general tax configuration, it should be noted that Italian legislation allows each province to increase the base rate up to 30%. Regarding the use of this taxation right, a large number of provinces have complied with environmental criteria. Thus, provinces such as Brescia, Padova, Urbino, Potenza, Ravenna have determined a smaller increase in the tax rate for vehicles powered by LPG (liquefied petroleum gas), CNG (Compressed Natural Gas), hydrogen, electricity and hybrids. We can also mention the case of Vicenza province, which has increased the base rate by 20% but that has excluded vehicles powered by LPG, CNG or electricity from this increase.

IMPOSTA PROVINCIALE DI TRASCRIZIONE

DECRETO LEGISLATIVO 446/1997, DE 15 DE DICIEMBRE

Each province can increases taxes by up to 30% the base rate.

Increase rate (%)	
30	Agrigento, Alessandria, Ancona, Ascoli Piceno, Asti, Bari, Barletta-Andria-Trani, Belluno, Bergamo, Biella, Bologna, Brescia (1), Brindisi, Cagliari, Caltanissetta, Campobasso, Caserta, Catania, Catanzaro, Chieti, Como, Cosenza, Cremona, Cuneo, Enna, Fermo, Firenze, Foggia, Forlì-Cesena, Frosinone, Genova, Gorizia, Imperia, Isernia, L'Aquila, La Spezia, Lecce, Lecco, Livorno, Lodi, Lucca, Macerata, Mantova, Massa Carrara, Matera, Messina, Milano, Modena, Monza e Brianza, Napoli, Novara, Nuoro, Oristano, Padova (2), Palermo, Parma, Pavia, Perugia, Pesaro Urbino (2), Pescara, Piacenza, Pisa, Pistoia, Potenza (2), Prato, Ragusa, Ravenna (2), Reggio Calabria, Rieti, Rimini, Roma, Rovigo, Salerno, Sassari, Savona, Siena, Siracusa, Sud Sardegna, Taranto, Teramo, Terni, Torino, Trapani, Treviso, Varese, Venezia, Verbano-Cusio-Ossola, Vercelli, Verona, Vibo Valentia, Viterbo.
25	Crotone, Sondrio, Ferrara.
20	Arezzo, Avellino, Benevento, Friuli Venezia Giulia Region, Grosseto, Latina, Reggio Emilia, Vicenza (3)
0	Aosta, Bolzano, Trento

Notes:
1) Increase of 15% for vehicles powered by LPG, CNG, hydrogen or electricity.
2) For vehicles powered by LPG, CNG or electricity, and for hybrids, the increase is 20%.
3) No increase for vehicles powered by LPG, CNG or electricity.

Despite these latest environmental nuances, the legislation is not in line with the reforms implemented by the Member States.

3.3 MEMBER STATES THAT MAINTAIN THE REGISTRATION TAX WHILE INCORPORATING ENVIRONMENTAL ELEMENTS

A third line followed by the Member States in accordance with the parameters established by the Directive Proposal is the maintenance of the Registration Tax, though including environmental elements in the tax quantification. Notable within this trend are countries such as Ireland, with its "*Vehicle Registration Tax*" (Finance Act. n.º 28, 1992), Portugal, with its "*Imposto sobre Veículos*" (Lei n.º 22-A/2007) or Holland, with its "*Belasting van Personenauto's en Motorrijwielen (BPM)*"[27]. Portugal thus establishes different tax rates depending on CO_2 emissions (See DIAS SOARES, 2021b, p. 107); and Ireland and Portugal have introduced specific measures for electric vehicles and those using renewable energies.

[27] Law on the Tax on Passenger Cars and Motor Bicycles, 1992 (Stb. 709).

In the specific case of Ireland, to structure the tax, the State starts from the vehicle sale price, but also takes into account CO_2 emissions based on the WLTP measurement system to modulate the tax burden.

VEHICLE REGISTRATION TAX (VRT)

Finance Act, 1992

VRT is determined as a percentage of the open market selling price (OMSP) of the vehicle. There are two more components to the VRT calculation: CO2 emissions calculation and also a NOx calculation.

The rates and band structures effective for all first registrations (new and used imports) in Ireland from 1 January 2021 are:

Band	CO2 emissions (g/km)	VRT (%)
A1	0–50	7.00
A2	51–80	9.00
A3	81–85	9.75
A4	86–90	10.50
B1	91–95	11.25
B2	96–100	12.00
C	101–105	12.75
D	106–110	13.50
E	111–115	14.25
F	116–120	15.00
G	121–125	15.75
H	126–130	16.50
I	131–135	17.25
J	136–140	18.00
K	141–145	19.50
L	146–150	21.00
M	151–155	23.50
N	156–170	26.00
O	171–190	31.00
P	191–600	37.00

As of 1 January 2022, in the M1 category, the taxation is also based on NOx (nitrogen oxide) emissions. As mentioned above, as in the case of the Netherlands and Portugal, exemptions have been established for electric vehicles as well as Tax refunds (VRT), applying certain requirements for hybrid and flexible fuel vehicles.

VEHICLE REGISTRATION TAX (VRT)

Finance Act, 1992

All M1 vehicles (excluding electrics but including hybrids) registered after 31 December 2019 are liable and will be charged nitrogen oxide (NOx) emissions as part of the payable VRT:

NOx emissions (NOx mg/km or mg/kWh)	Amount payable per mg/km or mg/kWh (€)
0-40	5.00
41-80	15.00
>80	25.00

Others measures:
- Exemption for electric vehicles.
- VRT refund for hybrid and flexible fuel vehicles.

The measures adopted by the States that have followed this third line of action would be compatible with the directive proposal. Indeed, so long as the levy still exists and has not yet been eliminated, it has to be modulated according to CO_2 emissions.

4 VEHICLE OWNERSHIP OR ROAD TAX TRENDS FOLLOWED BY MEMBER STATES

When establishing the Member States' tax on vehicle ownership or road tax, the Proposal for a Directive opted for a tax modulation based on the number of grams of CO_2 per kilometre emitted by each passenger car. However, not all the lines of action followed by the different countries conform with the European Commission 2005 guidelines. Three major trends between the different States can be differentiated. It is necessary to distinguish mainly between taxes containing environmental components and environmental taxes *stricto sensu,* in which environmental elements predominate in the tax structure (HERRERA MOLINA, 2000, p. 129).

4.1 MEMBER STATES THAT USE THE MECHANICAL ELEMENTS OF VEHICLES AS A BASIS FOR TAXATION

Member States that have followed this line consider the mechanical elements of the vehicles, overlooking any sort of environmental criteria. Notable cases include: Croatia – "*Porez na cestovna motorna vozila*"[28] – where engine power and the age of the vehicle are taken into consideration; Italy – "*Tasse automobilistiche*" (Dlgs. n.º 504. 30/12/1992) – that considers engine power, although it establishes a five-year exemption for electric vehicles as of the registration date; and finally the case of Hungary – "*Gépjárműadó*" – whose road tax is based on the vehicle's year of manufacture and engine power (Act. 82. 1991).

[28] Zakon or lokalnim porezima ("Narodne novine" broj 115/16 and 101/17).

These legislations do not follow the Community Proposal approach to reduce CO_2 emissions since they continue to determine their tax bases according to mechanical elements, failing to introduce elements relating to the environment.

4.2 MEMBER STATES INTRODUCING ENVIRONMENTAL ELEMENTS INTO THE ROAD TAX QUANTIFICATION

The best example in this second category is Spain, where the Tax on Mechanically Propelled Vehicles (IVTM by its Spanish acronym) taxes the ownership of mechanically propelled vehicles periodically, according to the power of the different classes of vehicles, measured in fiscal horsepower[29]. However, the Law on Local Finances allows municipalities to establish rate reductions of up to 75%[30]. The latter is based first, on the type of fuel consumed by the vehicle and the impact of its combustion on the environment (article 95. 1. [a] Real Decree Legislative 2/2004, of 5 March - RCL 2004, 602) and second, on the engine characteristics and its environmental impact (article 95. 1. [b] Real Decree Legislative 2/2004, of 5 March - RCL 2004, 602). In the short term, the IVTM should be amended so that their applicable rate table be based on the value of Spain's Duty on the Transfer of Assets, CO_2 emissions and the Euro category, instead of on the power and class of the vehicle, as currently established for most vehicles (GOROSPE OVIEDO, 2021, p. 63).

4.3 ENVIRONMENTAL ROAD TAXES

In this third category, Member State legislations have introduced environmental criteria in the tax base configuration, using

[29] Articles 92 to 99 of the Consolidated Text of the Law Regulating Local Finances (TRLRHL), Royal Legislative Decree 2/2004, of 5 March.

[30] With respect to Spain's Tax on Mechanically Propelled Vehicles (IVTM) "in no case can the tax be defined as environmental in nature, since environmental protection has been instrumentalised through a simple rate reduction that is merely optional for the municipalities" (RUIBAL PEREIRA; SERRANO ANTÓN, 2006, p. 211, author's translation).

a physical material unit with a negative impact on the environment as a quantification parameter.

The Member States that have followed this path are Germany, Ireland, Portugal, and Luxembourg. These latter countries' legislations consider this type of measure to establish the tariffs and exemptions.

Ireland, for its part, did not establish any environmental exemption when configuring the vehicle tax, "*Motor Vehicle Excise Duties*" (Finance, Excise Duties, Vehicles, Act, 1952), but configured the taxable base exclusively according to the vehicle's CO_2 emissions (WLTP).

Portugal, on the other hand, when configuring its "*Imposto Único de Circulaçao*" (Lei n.º 22-A/2007), considered different variables, such as CO_2 emissions (WLTP), displacement and age of the vehicle. However, in order to establish the applicable legal regime, it took into account the date of entry into force of the tax. Thus, for vehicles registered before its implementation, the tax base follows parameters such as displacement, voltage, age or fuel. In the case of vehicles registered after the date of entry into force of the tax, the taxable amount rests on the displacement and the level of CO_2 emissions (See DIAS SOARES, 2021a, p. 98).

Luxembourg, with its vehicle tax "*Taxe sur les véhicules routiers*"[31], sets out a different legal regime that depends on the age of the vehicle. For vehicles registered before 2001, mechanical elements are taken into account in the tax base, such as displacement and type of fuel. In the case of vehicles registered after 1 January 2001, the taxable amount covers CO_2 emissions.

[31] Law of 22 December 2006 promoting the maintenance of employment and defining special social security measures and environmental policy.

Worthy of note is the case of Germany. Its legislation exploits to the full all the elements of its road tax, the "*Kraftfahrzeugsteuer*" (Federal Law Gazette 2002 I p. 3818), in order to design an environmental tax. The tax base covers pollutant CO_2 emissions (WLTP), engine displacement and the type of fuel. This was pointed out in the Report of the Commission for the study and proposal of measures for the Reform of the Financing of Local Finances (2002). The report warned that it would be necessary to significantly raise the rates for the most polluting vehicles. Moreover, it should be determined essentially on the basis of the vehicle's environmental characteristics and not on the basis of other considerations (unlike the present case). The German legal framework is a good illustration in this respect[32].

KRAFTFAHRZEUGSTEUER

Motor Vehicle Tax Act (Federal Law Gazette 2002 I p. 3818)

The tax base is made up of two components, cylinder capacity and CO2 emissions (WLTP):

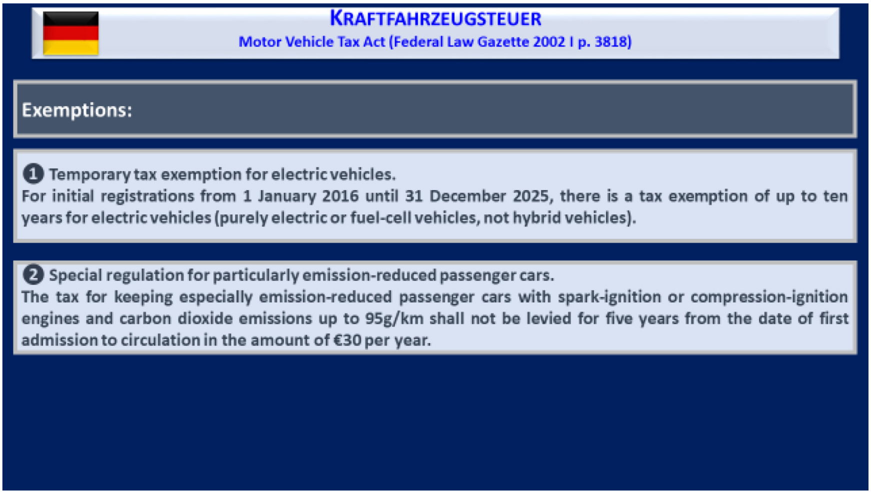
CO2 (g/km)	Tax (€)
> 95-115	2.00
>115-135	2.20
>135-155	2.50
>155-175	2.90
>175-195	3.40
>195	4.00

Additional tax-base dependent on cylinder capacity for each 100cc and parts thereof:
- 2 € petrol engines.
- 9.5 € diesel engines.

As can be observed, the German tax takes into account CO_2 emissions which it complements with an additional levy, depending

[32] Commission for the study and proposal of measures for the reform of the financing of the Local Finances, *Report of the Commission for the study and proposal of measures for the Reform of the Financing of Local Finances*, Madrid, Instituto de Estudios Fiscales, Ministerio de Hacienda, p. 133.

on the displacement and type of fuel[33]. In addition, it establishes[34] an exemption of up to ten years for electric vehicles and five years for passenger cars with reduced CO_2 emissions.



Due to the important role it gave to environmental considerations in its legislation, Germany was considered an example to follow in the domain of the green restructuring of vehicle taxation. The German framework seems to have adapted its line of action the most to the requirements established in the Proposal for a Directive by not requiring Registration Tax and by having designed the Vehicle Tax based on environmental criteria (See SÁNCHEZ BLAZQUEZ, 2007, p. 217). This dual line of action would be difficult to introduce in Spain, given that the road tax is a municipal tax, while the registration tax has been transferred by the State to the Autonomous Communities (GOROSPE OVIEDO, 2021, p. 57).

[33] As Davide Cerruti, Anna Alberini, and Joshua Linn pointed "[...] in Germany, a vehicle's circulation tax increases linearly with its emissions rate, whereas in the UK, it is a step function of the emissions rate" (CERRUTI; ALBERINI; LINN, 2017, p. 1).

[34] Tax exemptions are issued in some cases: electric vehicles, clean diesel, oldtimer, cars of people with severe disabilities and emergency vehicles.

5 EVOLUTION OF VEHICLE TAXATION POLICIES: A COMPARATIVE ANALYSIS ACROSS OECD COUNTRIES

5.1. INTRODUCTION

Taxation regarding the acquisition, possession and utilization of vehicles was implemented across most OECD countries during the initial half of the 20th century, subsequently emerging as a significant fiscal stream for numerous governments. All OECD Member States rely on a broad spectrum of tax mechanisms to generate revenue from both private and commercial vehicle owners, as well as road users.

Over the years, numerous governments have incorporated environmental and climate objectives into these measures. Taxes and fees on vehicles primarily encompass:

- taxes levied upon the purchase, inclusive of VAT and retail sales taxes, and registration of motor vehicles, payable singularly upon acquisition or the initial activation of a vehicle´s service;
- recurring taxes related to vehicle ownership or usage;
- taxes on road fuels.

The taxation of vehicles has undergone a protracted evolutionary process and embodies a myriad of factors beyond revenue generation. Geographical, industrial, social, energy, transportation, urban and environmental policy imperatives have collectively shaped the magnitude and framework of such taxation. These levies have evolved over time to influence consumer behaviour and mitigate transportation externalities, especially those related to the environment.

The main approaches followed by OECD member countries concerning the two major categories of taxes imposed on vehicles will be outlined: taxes on purchase and registration, and taxes on vehicle ownership.

5.2 TAXES ON SALE AND REGISTRATION OF MOTOR VEHICLES

All OECD Member States impose taxes on the acquisition or registration of motor vehicles. These taxes encompass value-added tax (VAT), sales taxes, excise duties and additional fees linked to vehicle registration.

TAXES ON SALE AND REGISTRATION OF MOTOR VEHICLES			
Country	**Taxes**	**Criteria**	**tax benefits/Exemptions**
Australia	**GST:** 10% **Luxury Car Tax**: 33% calculated on the value of most cars that exceed the luxury car tax threshold. The luxury car tax threshold is generally AUD 67 525 (in 2019-20), tax inclusive (including GST) or AUD 75 526, tax inclusive (including GST) if the car's fuel consumption is less than 7 litres per 100 kilometres. **Registration fee** – varies between states/ territories – may be calculated on the tare weight, value or type of vehicle. **Stamp duty** - varies between states/ territories - calculated on the tare weight (heavy vehicles) or value (light vehicles)	Value Fuel efficiency. Weight (registration or stamp duty only)	Some exemptions apply from luxury car tax including: - emergency vehicles such as ambulances etc. - sale of vehicle is more than two years after manufacture or importation - vehicles modified to transport a person in a wheelchair (provided it is not GST-free) - commercial vehicles primarily used for carrying goods in business or trade - imported by museum for public display Eligible tourism operators and primary producers are eligible to claim a refund of Luxury Car Tax paid up to AUD 10 000 for certain cars. GST: exemption is provided to veterans and persons with a disability that fulfil legal requirements.
Austria	**VAT:** 20%. **New Car Registration Tax:** while the tax base is the selling price, the tax rate depends on the CO_2-emissions of the car* i.e. CO_2 emissions in gram/km, reduced by 115 grams WLTP (90 NDEC), divided by 5. The rate cannot exceed 32%. For CO_2 emissions above 275g/km WLTP (250 g/km NDEC), the tax increases by EUR 40 for each g/km exceeding the limit of 275g/km WLTP (EUR 20 for each g/km exceeding the limit of 250g/ km NDEC. An amount of up to EUR 350 has to be deducted from the amount of tax calculated following the above rules. *Starting from 1.1.2020 the relevant CO_2-emissions are determined by WLTP (NEDC before that). **Registration fee** (tax): fixed rate of Registration fee: motor vehicles registered for the state or local authorities EUR 119.80 per motor vehicle (+ up to EUR 49,70 processing fee for the registration office + approx. EUR 20 for other expenditures).	Value CO_2 emissions	New Car Registration Tax: exemptions for demonstration vehicles, motor vehicles for driving schools, vehicles that are hired, used for guests or as taxis, motor vehicles used for short time hiring out, motor vehicles used for the transport of sick persons and for rescue services, vehicles used for the transport of corpses, vehicles used by fire brigades and accompanying vehicles for special transports, vehicles used for disabled persons. Registration fee: exemption for motor vehicles registered for the state or local authorities.

Country	Taxes	Criteria	tax benefits/Exemptions
Belgium	**VAT**: 21% **Entry into Service Tax** *Flemish Region*: for non-leasing passenger cars, the tax rate depends on vehicle age, environmental characteristics (including CO_2 emissions), the type of fuel and the euro standard. The tax for leased vehicles is still calculated based on the engine power of the vehicle. *Walloon Region*: the tax rate depends on engine power or the fiscal power (which is derived from the combustion engine capacity). When the tax, determined on the bases of one parameter exceeds the tax determined on the bases of the other, the highest tax is retained. For motorcycles the amount is calculated with respect to the kilowatt. For electric cars and electric motorcycles, the tax is set at EUR 61.50 as of fiscal year 2019. For all hybrid vehicles (cars and motorcycles), the power taken in consideration is the one supplied by the combustion engine. Cars and mixed cars are also subject to a second constitutive element of the tax on registration of vehicles, the so-called "ecomalus", which is based on the CO_2- emission of the vehicle.	Age Engine power Cylinder capacity. Environmental characteristics (incl. CO_2 emissions) Type of fuel/gas.	*Flemish Region*: exemption for certain fuel types (pure electric, hydrogen-powered, plug-in hybrid (until 2021), powered by CNG/LNG (until 2021). Vehicles of more than 28 years old are subject to a uniform rate of EUR 45.56. As from fiscal year 2022 this uniform rate is only applicable to cars of 30 years of age or older. An age correction will be accorded within the tariff formula for used cars (in a progressive scale from 90% to 10% of the registration tax or a lump sum depending on the age of the vehicle). There is also a rebate for cars entirely or partially powered by Liquefied Gas Petroleum. All regions provide exemptions for some vehicles used by public authorities and vehicles for disabled people and war invalids.
Canada	**GST**: 5% **HST**: 13% or 15% for sales in the participating provinces. The following provinces have harmonized their provincial sales taxes with the federal Goods and Services Tax and therefore levy a rate of **GST/HST** of: New Brunswick, Newfoundland and Labrador, Prince Edward Island, Nova Scotia 15%; Ontario: 13%; Québec applies GST at a rate of 5% and Québec Sales Tax at a rate of 9.975%. **Provincial tax** rates are applicable for sales made in provinces not applying HST. **Automotive Air Conditioning Tax:** CAD 100 per unit. **Excise tax on Fuel Inefficient Vehicles:** vehicles with a weighted fuel consumption rating of 13 or more litres per 100 kilometres (55 % city and 45% highway) are subject to an excise tax at the following rates: at least 13 but less than 14 litres per 100 kilometres, CAD 1 000; at least 14 but less than 15 litres per 100 kilometres, CAD 2 000; at least 15 but less than 16 litres per 100 kilometres, CAD 3 000; and 16 or more litres per 100 kilometres, CAD 4 000.	Value. Fuel efficiency. Air conditioning.	Rebate of GST/HST to purchasers of specially equipped motor vehicles for persons with disabilities. The rebate is only available on the GST/HST paid on the portion of the purchase price that is attributable to the special features. Rebate of Excise Tax on Fuel Inefficient Vehicles – Specially Equipped Van: to end-users of vans equipped with a device designed exclusively to assist in placing a wheelchair in the van without having to collapse the wheelchair.

Country	Taxes	Criteria	tax benefits/Exemptions
Chile	**VAT**: 19% (used cars are exempt with some exceptions) **Registration fees payable to Civil Registry**: first registration fee, new plate fee, fee for transfer and registration of vehicles. **Tax on transfer of used motor vehicles** (levied by municipalities): 1.5% of the value of the vehicle.	Value. Fixed fee.	
Colombia	**VAT:** 19%. **Vehicle registration fee:** COP 152 000 for cars and COP 74 000 for motorcycles. **National Consumption Tax:** the 16% tax rate applies to family-type motor vehicles, camper vehicles and pick-ups whose FOB value (or the equivalent) is greater than or equal to USD 30 000 and Pick-ups whose FOB value (or the equivalent) is greater than or equal to USD 30.000. The 8% tax rate applies to family-type motor vehicles, camper vehicles and pick-ups and whose FOB value (or the equivalent) is less than USD 30.000 and to motorcycles with cylinder capacity greater than 200cc.	Type of vehicle. Value.	
Czech Republic	**VAT**: 21% **Registration fee**: motorcycles CZK 300 or 500 (depending on cylinder capacity); other motor vehicles CZK 800. The fee includes the registration plate. Permit fee on non-standard motor vehicles.	Value. Cylinder capacity.	
Denmark	**VAT**: 25% **Vehicle registration tax:** payable on first registration of the vehicle. Graduated tax rates according to the value of the vehicle (with lower rates for commercial vehicles) from 105% to 150% (on the remainder above DKK 82 800) for private vehicles and from 0% to 50% (on the remainder above DKK 17 500) for commercial vehicles.	Value. Utilisation. Fuel efficiency. Safety equipment. Anti-pollution equipment.	Rebate for low fuel consumption vehicles: registration tax is reduced by DKK 4000 for every kilometre the vehicle can run in excess of 16 km with 1 litre of petrol or in excess of 18 km with 1 litre of diesel. A supplement of DKK 1000 is payable for cars for every kilometre less than 16 km (petrol) or 18 km (diesel) they can run on one litre of fuel. Traffic Safety Equipment: for motor vehicles with major traffic safety equipment the value liable to registration duty is reduced up to DKK 13 370. For motor vehicles with minor traffic safety equipment reduction is between DKK 200 and DKK 600.
Estonia	**VAT**: 20% **Vehicle registration fee (State fee):** Vehicle: EUR 130; temporarily reported vehicle: EUR 335.	Value. Type of vehicle.	

Country	Taxes	Criteria	tax benefits/Exemptions
Finland	**VAT**: 24% **Vehicle Registration Tax** is based on CO_2 emissions. Rates vary from 2.7% of the general consumer price of the vehicle for cars emitting 0g/km or less to 48.9% for cars emitting 360g/km or more. **For delivery vans** there is a deduction based on maximum laden weight of the vehicle for vans over 2 500 kg. **For motorcycles** rates vary according to the cylinder capacity, between 9.8% and 24.4%, and the base is general retail value.	Value. CO_2 emissions. Utilisation. Cylinder capacity Type.	Exemption for disabled people, taxis, motor homes, cars used for veterinary purposes, rescue vehicles and funeral cars.
France	**VAT**: 20% Tax on Registration Certificates or regional tax on certificates is based on horsepower. Rates vary between EUR 33 and EUR 51.20 per horsepower according to the region. The rate is reduced by half for some vehicles depending on their nature (trucks weighing more than 3.5 tons, motorcycles) or age (more than 10 years old). **Additional tax on Registration certificates for first registration in France**: CO2 emission component of the tax varies from EUR 0 for vehicles emitting less than 138g CO2/km to EUR 20 000 for vehicles emitting more than 212g CO2/ km. (CO2 emissions are determined according to the Worldwide harmonised light-duty vehicles test procedure 6 WLTP) The horsepower component of the tax (vehicles that have not been subject to an EU-type approval) varies from EUR 3125 (6HP) to EUR 20 000 (18HP). The tax is not applicable to vehicles belonging to disabled people. **Additional tax on Registration certificates for registration after first registration in France**: the tax is based on horsepower. Horsepower component of the tax varies from EUR 100 (10HP) up to EUR 1000 (15HP) The tax is not applicable to vehicles belonging to disabled people. Additional tax on Registration certificates for cars with horsepower of 36HP or more: the tax is EUR 500 per horsepower from 36HP with a maximum of EUR 8 000. Collection vehicles are exempt from this tax. Additional Lorry Tax is levied on the regional certificate tax for lorries according to their weight (from EUR 38 for less than 3.5 tons to EUR 305 for more than 11 tons or trailers and buses for public transport of passengers).	Value. Engine power. Weight. Utilisation. Age. CO2 emissions. Type of fuel. Electric propulsión.	Exemption for new demonstration models weighing less than 3.5 tons, state vehicles, certain motorcycles Rebate for electricity or gas propelled cars: from 50% or 100% of the Tax on Registration Certificates. Rebate for Ethanol propelled cars: the Tax on Registration Certificates is reduced by 50% or 100% for cars that run with E85 fuel (super ethanol). Bonus system: a premium is granted for the purchase of a new car when its CO2 emissions are 125 g/km or less. The maximum premium is EUR 5000 (below 60 g/km).
Germany	**VAT**: 19% *From 1 July to 31 December 2020 the VAT rate is reduced from 19% to 16% to offset the economic impact of the Covid-19 pandemic.*	Value.	

Country	Taxes	Criteria	tax benefits/Exemptions
Greece	VAT: 24% Registration tax: rate varies - from 3.8% up to 64,00% of the taxable value, according to the retail price before taxes and to the CO2 emissions for passenger cars that belong to the current emissions standard. - from 5.7% to 96.00% of the taxable value, according to the retail price before taxes and to the CO2 emissions for passenger cars that belong to the previous emissions standard. - from 11.40% to 192.00% of the taxable value, according to the retail price before taxes and to the CO2emissions for passenger cars that belong to other emissions standard. - from 48.00% to 384.00% of the taxable value, according to the retail price before taxes and to the CO2 emissions for conventional technology cars. - from 5% to 13% of the taxable value, for lorries-trucks etc. (less or more than 3.5 tonnes), according to emissions standard. - from 0% to 25% of the taxable value for motorcycles according to cylinder capacity. Registration tax for buses depends on the number of seats etc.	Cars: value (retail price before taxes), CO2 emissions, “Euro” emissions standards, electric propulsion Lorries: weight, emissions standards, body type. Motor-cycles: cylinder capacity.	Exemptions from registration tax: Hybrid cars are relieved from the registration tax by 50%. Electric cars are not subjected to registration tax Cars used by public authorities Cars used by disabled persons. Cars used by parents having at least three (3) children. Ambulances used by public hospitals Cars used by people who have moved their normal residence to Greece. Cars donated to the Greek Police, Fire Brigade or Greek Coast Guards.
Hungary	**VAT**: 27% **Registration Tax**: from HUF 45 000 to HUF 400 000 on new passenger cars according to engine type (diesel or petrol) and engine cylinder capacity, and from HUF 15 000 to HUF 230 000 on motorcycles according to engine cylinder capacity. For cars with lower environmental category of engine higher rates are levied (400, 600, 800 or 1200% higher), but rate is reduced according to a scale based on age (until 90%). Reduced rate is levied to hybrid cars and HUF 0 is levied to electric cars. **Transfer of motor vehicles**: the rate of duty shall be determined based on the capacity of motor vehicle’s engine (in kW). The tax rate is from HUF 300/kW to HUF 850/kW depending on the age of the vehicle (the older the vehicle, the less is due).	Engine type Cylinder capacity. Engine power Polluting emissions Type of fuel Age Electric propulsion.	Reduced registration tax for cars with hybrid engines or with gas-powered engines (HUF 76 000) and for cars with electric engines as well as for hybrid and electric motorcycles (HUF 0).
Iceland	**VAT**: 24% **Vehicle Registration Fee** of ISK 5 000 on initial registration and ISK 2 130 for subsequent changes. **Motor vehicle excise duty:** based on CO_2 emissions ranging from 0-65% **Excise duties on motor vehicles other than private automobiles:** a percentage of value. **Small goods vehicles**, small special purpose vehicles, vehicles over 40 years old, motor vehicle bodies13% **Small coaches**, motorbikes, other vehicles30%.	Value. CO_2 emissions. Electric propulsion.	Temporary VAT exemption with a cap at import and domestic sales of electric-, hydrogen or plug-in hybrid vehicles, including busses. Large goods vehicles, large special purpose vehicles, tractors, agriculture trailers, large snow-mobiles, amphibious vehicles, competition cars and motorbikes, vehicles for transport of disabled persons, rescue vehicles and large coaches is exempt.

Country	Taxes	Criteria	tax benefits/Exemptions
Ireland	**VAT**: 23%. **Registration Tax**: based on CO_2 emissions and NOx emissions for passenger vehicles with not more than 9 seating positions and certain commercial vehicles with greater than 4 seats. For the CO_2 element of the charge, rates vary from 14% of the value of such a vehicle with CO_2 emissions of up to 80 g/km to 36% for such a vehicle with CO_2 emissions above 225 g/km. The NOx element of the charge is EUR 5 per mg/km for the first 60 mg/km, EUR 15 per mg/km for the next 20 mg/km, and EUR 25 per mg/km thereafter. The NOx element of the charge is capped at EUR 4 850 for diesel vehicles and EUR 600 for other vehicles. Flat rate applies to vehicles designed and constructed for the carriage of goods and having a maximum laden mass not exceeding 3.5 tonnes not included above and motor caravans (13.30% of the value). Motor cycles are charged EUR 2 per cc up to and including 350cc and EUR 1 per cc above. Large vehicles designed and constructed for the carriage of goods (maximum laden mass over 3.5 tons), buses, tractors and "vintage" (over 30 years old) vehicles are charged EUR 200. Special purpose vehicles such as ambulances and fire engines are subject to a nil rate.	Value. CO_2 emissions. NOx emissions. Electric propulsion. Type. Age. Max laden mass. Body type.	Relief for hybrid electric vehicles: age dependent with a maximum tax relief of EUR 1500 for a new vehicle. Relief for plug-in hybrid electric vehicles: age dependent with a maximum tax relief of EUR 2500 for a new vehicle. Relief for new series production electric vehicles: subject to a maximum of EUR 5000. Remission/repayment for vehicles specially adapted for persons with certain severe and permanent physical disabilities: subject to a maximum of EUR 10 000, EUR 16 000 and EUR 22 000 for a disabled driver and EUR 16 000 and EUR 22 000 for a disabled passenger. The amount is depended on the adaptations carried out on the vehicle. Relief for certain charitable organisations is subject to a maximum of EUR 16 000 when the vehicle is adapted to carry less than five such persons. Exemptions: Transfers of permanent residence, transfers of permanent business undertakings, inheritances, donations by certain organisations, international air services, diplomatic agents and EU officials, vehicles for use by EU or UN organisations.
Israel	**VAT**:17% **Purchase Tax**: private and commercial vehicle weight not exceeding 3500 kg are taxed at 83% of the value; Additional luxury tax is levied on the value of the vehicle that exceeds 300 000 NIS, according to the following formula: 20%*(vehicle price - 300 000)/vehicle price; Taxi < 3 500 kg – 8%; Taxi >3 500 kg – 0%; Commercial vehicles over 3500 kg are taxed at 72% of their value but not eligible for a rebate.	Weight. Polluting emissions. Electric propulsion. Safety system. Engine power.	Rebates according to the polluting emissions: vehicles weighing up to 3500 kg benefit of a rebate on the Purchase Tax according to their degree of pollution. There are 15 levels of polluting emissions according to a "Green Score" (weighting the emission of five major pollutants). Rebate is up to the amount of NIS 16 629 Hybrid vehicles - Pollution level 1 or 2 –; battery capacity > 3 KWH and green score < 100 – 20% are taxed at a rate of 45% but the tax benefit is capped at ILS 20 000. Plug-in Hybrid vehicles are taxed at a rate of 25% but the tax benefit is capped at ILS 60 000. Electricity powered vehicles are taxed a rate of 10% of their value depending on the customs and purchase tax rate. Since June 2018 luxury tax is also levied on hybrid vehicles and electric vehicles. Vehicles weighing up to 3500 kg benefit of a rebate on the Purchase Tax (up to 2400 NIS) according to their safety level. There are 9 safety levels (0-8) depending on the number of safety systems.

Country	Taxes	Criteria	tax benefits/Exemptions
Italy	**VAT**: 22% Anyone who buys, incl. through financial leasing, and registers a new M1 vehicle (i.e. vehicles designed and constructed for the carriage of passengers and comprising no more than eight seats in addition to the driver's seat) in Italy, as well as registers in Italy an M1 vehicle already registered in another State, is required to pay a **tax based on the number of grams of CO_2 emitted** per km exceeding the threshold of 160 CO_2 g/km as follows: 161-175 CO_2 g/km: EUR 1100; 176-200 CO_2 g/km: EUR 1600; 201-250 CO_2 g/km: EUR 2000; above 250 CO_2 g/km: EUR 2500.	CO2 emissions.	Exemption from the tax: special purpose vehicles such as vehicles for disabled people.
Japan	**VAT:** 10% **Environmental performance excise (automobile tax - light motor vehicle tax):** 0-3% of acquisition price (0-2% for commercial and light vehicles) according to environmental criteria (e.g. vehicle type, fuel efficiency, etc.).	Value. Environmental criterio. Fuel efficiency.	Extension of temporary reduction of environmental performance excise (automobile tax - light motor vehicle tax): reduced tax rate (environmental performance excise) for private passenger cars acquired between October 2019 and March 2021 by 1% Special measures of reduced environmental performance excise (automobile tax): vehicles with small burden of environment, barrier-free buses and taxis, trucks with collision damage alleviation brake control device, etc., buses for ordinary passengers used on the bus routes provided for in prefectural ordinance.
Korea	**VAT**: 10% **Special Excise Tax:** from zero to 5% of the manufacturer's price according to cylinder capacity **Education Tax**: 30% on the amount of Excise Tax **Acquisition Tax**: 2-7% of the retail price excluding VAT.	Value. Cylinder capacity. Electric propulsion.	Exemptions from special excise tax and education tax. Cars used by disabled persons; ambulances used by hospitals. Cars used for transportation business (public passenger transportation only); cars used for car-rental business. Exemptions from acquisition tax Cars used by disabled persons, cars used by parents having at least 3 children, small cars for non-commercial activities. Rebate for hybrid and electricity powered vehicles: relief of the Special Excise tax not exceeding KRW 1 000 000 (hybrid) and KRW 2 000 000 (electricity powered vehicles).
Latvia	**VAT:** 21% **Vehicle registration (state fee):** for registration, registration certificate and registration number plates - EUR 43.93 **Natural resource tax:** EUR 55 per vehicle	Value.	

Country	Taxes	Criteria	tax benefits/Exemptions
Lithuania	VAT**: 21 %** **Registration fee:** a flat rate fee of EUR 14.48 is payable on the first registration of a new vehicle (passenger cars, heavy vehicles) and a flat rate fee of EUR 12.45 is payable on the first registration of other vehicle – e.g. used cars (passenger cars, heavy vehicles). From 1 July 2020, a car registration tax applies payable by all car owners (individuals and legal entities) when registering the car. The fee will vary depending on CO_2 emissions and fuel type and will range from 15 Euro to 540 Euro.	Value. Age of vehicle. CO_2 Emissions.	Rebate for disabled people (only owners of passenger cars (once every 3 years): 90% rebate on registration fee for owner who has a disability percentage of 75-100%. 75% rebate on registration fee for owner who has a disability percentage of 60-70%. 50% rebate on registration fee for owner who has a disability percentage of 45-55%.
Luxembourg	**VAT**: 17% **Registration Tax**: the tax is calculated per 100 cm3 according to the following formula: Tax = a * b * c, where a = CO_2 emissions component; b = multiplier (= 0.9 for cars using gasoil & 0.6 for cars not using gasoil). c= additional multiplier when CO_2 emissions >90 g/km (= 0.5 plus 0.1 per additional 10 g/km).	Value. CO_2 Emissions. Type of fuel. Electric propulsión.	Bonus system: purchasers of new hybrid cars emitting less than 60g CO2/km and electricity powered vehicles are entitled to a bonus of EUR 5 000.
Mexico	**VAT**: 16% **New vehicles tax**: from 2% to 17% plus a fixed fee according to vehicle value. For vehicles with a price higher than MXN 782 125.30 (for 2020), an additional discount applies consisting of the reduction of the tax at 7% of the difference between the sales price and the price threshold mentioned above. The tax tariff limitations are updated every year.	Value. Electric propulsión.	Exemption of 100% of the New Vehicles Tax for vehicles with value of up to MXN 263 690.54 Exemption of 50% of the New Vehicles Tax for vehicles with value from MXN 263 690.55 to MXN 334 008.02 Exemption of 100% of the New Vehicles Tax for hybrid electricity powered vehicles.
Netherlands	**VAT**: 21% **Registration Tax:** for passenger cars, it is fully based on CO_2 emissions and the type of motor fuel used. For passenger cars, the registration tax is progressive and varies between EUR 356 and EUR 458 per g/km exceeding the level of 1g/km. Passenger cars using diesel are charged with an additional EUR 86.43 per g/km exceeding the level of 67 g/km. Registration tax for motorcycles and delivery vans is based on the value of the vehicle.	CO_2 Emissions. Motor fuel. Value. Electric propulsion.	Zero-emission vehicles (e.g. electricity powered vehicles) are exempt from Registration Tax Other examples of exemption are: delivery vans owned by entrepreneurs and used for business purposes for at least 10%; Tax refunds are provided for vehicles such as: vehicles used by fire brigades, vehicles used by the police, funerary vehicles, vehicles used for the transport of prisoners, vans used by disabled persons, (animal) ambulances, taxis and vehicles that are used for secure transport.

Country	Taxes	Criteria	tax benefits/Exemptions
New Zealand	**GST:** 15% **Registration Fee on initial registration**: the registration fee varies depending on the type of vehicle being registered. The base registration fee for a private passenger vehicle varies from NZD 74.00 to NZD 232.00 depending on the size of the engine. **Road user charges**: all diesel vehicles and any vehicle with a GVM of 3.5 tonnes or more are required to pay road user charges. Road user charges are distance based (purchased in 1000-kilometre increments) and charges vary based on the weight and configuration of the vehicle.	Vehicle type. Cylinder capacity. Electric propulsion.	Electric vehicles are currently exempt from road user charges.
Norway	**VAT**: 25% **Registration Tax**: rates vary according to weight, CO_2-emissions, and NOx-emissions. When CO_2-emissions information is not stated, the tax is calculated based on cylinder capacity instead of CO_2-emissions.	Weight. CO_2 emissions. NOx emissions. Type of fuel. Electric range.	Electricity powered vehicles are exempt from the Registration Tax Plug-in hybrid vehicles (both electric and combustion engine, with external charging) benefit from a rebate from Registration Tax: 23% of the total weight is not included in the tax base. From 1 July 2018 the weight deduction is differentiated by electric range. Flexifuel vehicles (can use fuel with at least 85 pct. Ethanol) benefit from a rebate of NOK 10 000 per vehicle.
Portugal	**VAT**: 23% **Motor vehicle tax release for consumption (ISV)** is based on cylinder capacity and CO_2 emissions (light passengers vehicles) or only on cylinder capacity (other light vehicles, and cycles with two, three or four wheels). Other rate brackets are applicable for light commercial vehicles and some segments of combined (passenger and freight) vehicles.	Value Engine capacity CO_2 Emissions Particles emissions Electric propulsión.	Are exempt: vehicles owned by the State (central, regional or local administration), fire brigades, foreign States, diplomatic and consular missions, international organisations and European agencies. Are also exempt: vehicles for disable persons, passenger vehicles for rental or taxi services. Non-motorized vehicles that are purely electric vehicles or moved by renewable energies, and ambulances and heavy vehicles (above 3.500 kg) are out of motor vehicle tax incidence.
Slovak Republic	**VAT**: 20% **Administrative fees**: registration in the vehicle register is subject to a registration fee payable by the holder of a motor vehicle (applies to new, imported and used cars). The fee is calculated by formula with given parameters: RP = Pkw x RV1-n where RP is fee rate, Pkw is power of engine, RV1-n is coefficient of vehicle residual value, but the rate shall not be lower than EUR 33. Pkw values vary in 16 brackets from EUR 33 (engine capacity up to 80kw) to EUR 3900 (engine capacity above 254kw). RV1-n coefficient varies in 17 brackets from 1 (first registration) to 0.06 (vehicles over 16 years old). First record of electric car in the cars register is subject to a fee of EUR 33 payable by the holder of the vehicle. **Plate fee:** for the release of a license plate number: EUR 16.50 per plate i.e. EUR 33 for 1 vehicle.	Value Engine power Residual value Type of fuel Electric propulsión.	Disabled persons: 50% rebate (max. 100 EUR) in administrative fee are applied for disabled persons. Hybrids, CNG, LNG vehicles: 50% rebate in administrative fee for vehicle holder. Family vans: 50% rebate in administrative fee for vehicle holder with maximum power of engine of 110 kW; holder has at least 4 children in parenting. Other exemptions: 100% rebate for state authorities, higher territorial units, budget organisation, diplomats, court of justice, prosecution, police, Slovak red cross and legal person owned by state authority (100% of shares).

Country	Taxes	Criteria	tax benefits/Exemptions
Slovenia	**VAT**: 22% **Motor vehicle tax** is levied for passenger motor vehicles, motorcycles and camper vans put into circulation for the first time; imports and acquisitions from other EU Member States are also subject to the tax. The tax base is the selling price of an individual motor vehicle, excluding VAT and the motor vehicle tax itself. The tax rate is determined according to environmental criteria (CO_2, Euro emission standards) and the rates are determined from 0.5% to 28% for petrol cars and from 1% to 31% for diesel cars. Passenger cars with cylinder capacity over 2500 cm³ are subject to an additional tax. Rates vary from 8% (2500 cm³ and more) to 16% (4000 cm³ and more). For diesel cars particulate matter (PM) emissions are also considered. Tax rates for motorcycles and camper vans are set upon engine power in the range from 1.5% to 5% for motorcycles and 6% to 18% for camper vans. Motorcycles with cylinder capacity over 1000 cm³ are subject to the additional tax of 5%. Motor vehicle tax is levied only at the time of first registration of a vehicle and not on an annual basis.	Value. Selling price. CO_2 emissions. Particulate matter emissions. EURO emissions standards. Engine power. Cylinder capacity. Weight.	Motor vehicle tax exemptions: vehicles acquired for transport of families with three or more children; vehicles purchased for carrying disabled people; vehicles intended for (1) official use by diplomatic and consular representations accredited to Slovenia; (2) official use by international organisations, if so stipulated by international treaties binding on Slovenia; (3) personal use by foreign staff of diplomatic and consular missions, accredited to Slovenia, including their family members; (4) personal use by foreign staff of international organisations, including their family members, if so stipulated by international treaties binding on Slovenia. Are also exempt: used vehicles (old-timers); vehicles imported on a temporary basis (the temporary change of residence of the vehicle's proprietor who does not maintain his permanent residence in Slovenia); sports vehicles that have not been adapted for road use and are intended only for driving on circuits; transfer of vehicles in the case of reorganisations of vehicle's proprietor; emergency rescue motor vehicles used for transport of victims and patients; financial leasing of the vehicles. Tax exemptions listed in this box also apply to financial leasing of these vehicles. There is no exemption for the environmental tax
Spain	**VAT**: 21% **Vehicle Registration Tax (VRT)** is based on CO_2 emissions. Rates vary from 0% (up to 120 g CO_2/km) to 14.75% (200 g CO_2/km and more).	Value. CO_2 emissions.	VRT exemptions: taxis, driving school vehicles, rental service vehicles; vehicles acquired and used by disabled people; vehicles with special diplomatic registration; transfer of vehicles in the case of change of residence of vehicle's owner.
Sweden	**VAT**: 25%	Value.	
Switzerland	**VAT**: 7.7% **Automobile duty:** 4% of the vehicle's value is levied on light commercial vehicles with a unit weight of no more than 1600 kg, as well as on passenger vehicles. The duty is payable on the importation of automobiles into the domestic territory and the delivery and own use of automobiles produced domestically. No registration tax (but small fees for number plates and registration papers)	Value. Electric propulsion.	Electrically powered vehicles are exempt from acquisition tax.

Country	Taxes	Criteria	tax benefits/Exemptions
Turkey	**VAT**: 18%. **Special Consumption Tax (SCT)** is collected once on first acquisition of vehicles. Criteria: engine capacity, SCT tax base, motor power for electric and hybrid vehicles in kw.	Value. Cylinder capacity. Electric propulsion.	Exemption: vehicles for diplomatic use, vehicles for people with disabilities, acquisition of aircraft and helicopters by T.A.A., the first acquisition of vehicles by the headquarters of the Presidency, the vehicles acquired exclusively for use in petroleum exploration activities, the exemption for vehicle purchases of relatives of martyrs, exemption for renewed of commercial vehicles. Rebate: discounted SCT rate applied for only electric vehicles in the 87.03 and 87.11 tariff positions and motor vehicles that have electric motors along with fuel engines (hybrids) in the 87.03 tariff position.
United Kingdom	**VAT**: 20% **Vehicle First Registration Fee**: a flat rate fee of GBP 55.0 is payable on the first registration or licensing of a motor vehicle in the United Kingdom	Value.	Rebate for disabled people: disabled people are exempt from the Vehicle First Registration Fee. Other exemptions: vehicles previously registered in Northern Ireland; vehicles registered for off road use; Crown Exempt Vehicles; historic vehicles previously registered with the old Local Authorities (late conversions); imported vehicles previously registered under the Personal Export Scheme and New Means of Transport Scheme; Visiting Forces Vehicles.
United States	**A gas guzzler tax** is imposed on the sale, use, or lease by the manufacturer or importer of an automobile of a model type that does not meet certain standards for fuel economy. Automobiles imported for business or personal use are also subject to the tax. “Automobile” means any four-wheeled vehicle (including limousines) rated at 6 000 pounds or less unloaded gross weight that is propelled by an engine powered by gasoline or diesel fuel and is intended for use mainly on public streets, roads, and highways. In 2017, the tax applied to motor vehicles that achieved less than 22.5 miles per gallon. The tax was USD 1 000 for automobiles that got between 21.5 and 22.5 miles per gallon and increased in stages, reaching USD 7 700 for vehicles that got less than 12.5 miles per gallon. **A retail tax on heavy trucks, trailers, and tractors**.12 percent of the sales price applies to the first retail sale of a truck chassis or body, a truck trailer and semitrailer chassis or body, and tractors that are primarily used for highway transportation in combination with a trailer or semitrailer. **A taxable tire tax** is imposed on tires sold by the manufacturer, producer, or importer at the rate of USD 9.45 cents (USD 4.725 cents in the case of a biasply tire or super single tire not designed for steering) for each 10 pounds of the maximum rated load capacity over 3 500 pounds.	Fuel efficiency. Value. Weight. Tires.	The gas guzzler tax is widely applied and must be paid by vehicles sold to the federal government, state and local governments, and non-profit educational organizations. Vehicles used for police, other law enforcement purposes, or firefighting purposes or as ambulances are exempt. Limousines weighing more than 6 000 pounds or designed to carry more than 10 people are exempt. Tires for use on local and school buses or for the exclusive use of the Department of Defense or the Coast Guard are exempt.

Source: OECD, Consumption Tax Trends 2022: VAT/GST and Excise, Core Design Features and Trends.

As we have seen, these taxes may vary significantly from one country to another. They are based on a wide range of criteria. The main parameters taken into consideration include engine power or cylinder capacity, social considerations, including preferential treatment of emergency vehicles, environmental impact, etc.

Several specific elements can also be considered when determining the tax burden, such as weight, the presence of safety equipment, air conditioning. Additionally, taxation in several countries depends on the age of the vehicle.

The international variations in taxation on sales and registration of motor vehicles do not typically result in significant cross-border shopping, as vehicles must be registered with a unique identification number in the primary country of use.

5.3 PERIODIC TAXES PAYABLE IN CONNECTION WITH THE OWNERSHIP OR USE OF THE VEHICLES

The majority of OECD countries impose taxes on the ownership or utilization of motor vehicles. These taxes encompass recurring fees imposed on the privilege to operate vehicles on public roads, typically in the form of an annual motor tax.

PERIODIC TAXES PAYABLE IN CONNECTION WITH THE OWNERSHIP OR USE OF THE VEHICLES			
Country	**Taxes**	**Criteria**	**tax benefits/Exemptions**
Australia	**Annual registration fees**. States and Territories levy fees for annual registration, third party compulsory insurance and drivers' licenses. Fees for commercial vehicles are generally higher than the fees for private vehicles. In most States, fees for trucks vary depending on the type of vehicle and the gross vehicle mass. Licence renewal fees vary to reflect validity periods from one to five years.	Commercial/private use Gross vehicle mass	
Austria	**Motor Vehicles Tax**: motor vehicles above a permissible gross weight of 3.5 tonnes are subject to a Motor Vehicle Tax based on the weight of the vehicle (from EUR 1.55 to EUR 1.90 per month and ton depending on the weight). **Motor Vehicle Insurance Tax**: applicable to motor vehicles up to and including a maximum permissible gross weight of 3.5 tons. For first registrations before 1.10.2020: the tax is based on engine power in kilowatt (cars) or cubic capacity (motorbikes). For first registrations after 1.10.2020: CO2-emssions are taken into account in addition to engine power/cubic capacity. For cars: (engine power in kilowatt – 65) * 0.72 EUR + (CO2 emissions – 115) * EUR 0.72 per month. For motorbikes: (cubic capacity – 52) *0,014 + (CO2-emissions – 52) * EUR 0.20 per month.	Weight Engine power Cubic capacity CO2 emissions Electric propulsión.	Vehicles used by diplomatic missions and consular offices; armed forces; police; fire brigade; ambulances; mountain rescue; electrically propelled vehicles; self-propelled working machines; trial moving vehicles; taxi services; mopeds and motorcycles with a cubic capacity of maximum 100 CC; vehicle used solely in agricultural production and forestry; vehicles used for disabled persons.

Country	Taxes	Criteria	ax benefits/Exemptions
Belgium	**Federal tax**: the calculation of the taxable benefit from the private use of a company car is based on C02 emissions. The deductibility of professional expenses related to the use of the car, including fuel expenses, (50 to 120%) is linked to CO2 emissions. **Annual Road Tax**: Walloon Region: the tax rate depends on fiscal hp. and cylinder capacity and is set according to a progressive scale from EUR 80.52 to EUR 2060.92. For vehicles above 20 hp (more than 41 cylinder capacity) an additional amount of EUR 112.33 by hp is levied. Vehicles of more than 30 years old (25 years old in the Brussels Capital Region) are subject to an annual tax of EUR 36.53. **Flemish Region**: for passenger cars, dual-use cars and minibuses that were registered as from 1 January 2016 as well as for vehicles, intended for the transport of goods, hearses, tractors or trailers of an MMA of less than or equal to 2500 kg that were registered 30 June 2017, the tax rate depends on fiscal h.p. and cylinder capacity, but includes "ecoboni" and "ecomali". This implies that the tax is modulated depending on the C02 emission, the euro standard and the type of fuel (except for leasing cars). For leasing vehicles and other non-leasing vehicles, the tax rate depends only on fiscal h.p. and cylinder capacity and is set according to a progressive scale from EUR 80.52 up to EUR 2060.92. For vehicles above 20 hp (more than 41 cylinder capacity) an additional amount of EUR 112.33 h.p. is levied. Vehicles of more than 28 years old are subject to an annual tax of EUR 38.08. As from the fiscal year 2022 this annual tax is only applicable for cars of 30 years of age or older. **Brussels Capital Region**: for passenger cars the tax rate depends on engine power expressed in fiscal hp and is set according to a progressive scale from EUR 83.83 to EUR 2148.30. For vehicles with an engine power exceeding 20 hp (more than 41 cylinder capacity) an additional amount of EUR 117.21 per hp is levied. For electric cars the minimum rate applies. Vehicles of more than 25 years old are subject to an annual tax of EUR 38.08. (The age at which a vehicle is considered to be an "old-timer" is to be increased gradually from 25 to 30 years by 2025.). For motorcycles an annual flat-rate tax of EUR 59.27 applies. For light goods vehicles up to and including a maximum permissible laden weight of 3.5 tons, as well as for camping cars the tax rate depends on the maximum permissible laden weight. For heavy goods vehicles with a maximum permissible laden weight of over 12 tons the tax rate depends on the maximum permissible laden weight, the number of axles and the suspension type. Additional annual road tax is levied in all the regions on cars entirely or partially powered by Liquefied Gas Petroleum. This tax is based on a progressive scale depending on the engine power from EUR 89.16 to EUR 208. 20 **Kilometre charge**: a kilometre charge is levied in all the Regions on motor vehicles or articulated vehicle combinations intended or used for the carriage by road of goods having a maximum permissible laden weight of over 3,5 tonnes.	Engine power Cylinder capacity Fuel used Environmental characteristics CO_2 emissions	All regions provide exemptions for cars used by public authorities, vehicles for disabled people and war invalids, agricultural vehicles, rescue vehicles, trial moving vehicles, ships and little boats, taxi services, mopeds and motorcycles with a cylinder capacity of maximum 250 CC. Flemish Region: as of fiscal year 2016 a tax reduction of EUR 100 is applicable to cars running on Liquefied Gas Petroleum. Exemption is provided to cars using certain fuels: pure electric, hydrogen-powered, plug-in hybrid (until 2021), CNG/LNG (until 2021). Brussels region: an exemption of the tax is granted to victims of a terrorist attack that have an invalidity pension of minimum 60%.

Country	Taxes	Criteria	ax benefits/Exemptions
Canada	All regions provide exemptions for cars used by public authorities, vehicles for disabled people and war invalids, agricultural vehicles, rescue vehicles, trial moving vehicles, ships and little boats, taxi services, mopeds and motorcycles with a cylinder capacity of maximum 250 CC. Flemish Region: as of fiscal year 2016 a tax reduction of EUR 100 is applicable to cars running on Liquefied Gas Petroleum. Exemption is provided to cars using certain fuels: pure electric, hydrogen-powered, plug-in hybrid (until 2021), CNG/LNG (until 2021). Brussels region: an exemption of the tax is granted to victims of a terrorist attack that have an invalidity pension of minimum 60%.	Type Weight	
Chile	**Annual Motor Vehicle Tax** (levied by municipalities) for the use of motor vehicles on public roads depending on the commercial value of the vehicle. Lightweight vehicles: depending on the commercial value of the vehicle. Passenger vehicles: fixed fee. Cargo vehicles: according to loading capacity.	Commercial value Fixed fee Loading capacity (trucks	
Colombia	**Annual Motor Vehicle Tax**. This tax is levied by municipalities for the use of motor vehicles on public roads and the rates depend on the commercial value of the vehicle, as follows: (a) 1,5% of the commercial value of the vehicle when the value of the vehicle is less than COP 48 029 000. (b) 2,5% of the commercial value of the vehicle when the value of the vehicle is greater than COP 48 029 000 and less than COP 108 063 000. (c) 3.5% of the commercial value of the vehicle when the value of the vehicle is greater than COP 108 063 000.	Commercial value	
Czech Republic	**Road tax** is imposed on all road motor vehicles and their trailers registered and operated in the Czech Republic if they are used by: - corporate income taxpayers (except for vehicles used by public benefit taxpayer for activities which are not subject to corporate income tax); - personal income taxpayers, for an independent from which they derive income as defined under the Act on Income Tax or in direct connection with such activities. Vehicles with a total permitted weight above 3.5t registered in the Czech Republic and destined solely for freight transport are always liable to road tax. For passenger cars the tax base is the engine's cylinder capacity in cubic centimetres, with the exception of electric-driven passenger cars. For semi-trailers and other motor vehicles the tax base is the total of the maximum permitted weight on axles in tonnes and the number of axles of semi-trailers; in the case of other vehicles the maximum permitted weight in tonnes and the number of axles. The annual tax rate of passenger cars varies from CZK 1 200 to CZK 4 200 and in the case of other vehicles vary from CZK 1 800 to CZK 33 100.	Cylinder capacity (passenger cars) Type of propulsion Electric propulsion Type of fuel Total max. permitted weight on axles and number of axles (semi-trailers) Max. permitted weight and number of axles (other vehicles)	Cylinder capacity (passenger cars) Type of propulsion Electric propulsion Type of fuel Total max. permitted weight on axles and number of axles (semi-trailers) Max. permitted weight and number of axles (other vehicles)

Country	Taxes	Criteria	Tax benefits/Exemptions
Denmark	**Passenger cars semi-annual tax**: the tax is based on fuel consumption, with different rates for petrol/diesel. Rates range from DKK 310 (>20km/l) up to DKK 10830 (<4.5km/l) for petrol cars, and from DKK 130 (>32.1km/l) up to 16 100 (<5.1km/l) for diesel cars. **Lorries' annual tax**: Vehicles registered for the first time until 24 April 2007: the charge for private use is DKK 1 060 annually for cars with total permissible weight (tpw) up to 2000 kg and DKK 5 920 annually for cars with tpw between 2000 and 4000 kg. **Charge for private use**. Vehicles registered on 25 April 2007 or after: the charge for private use is DKK 5920 annually for cars with total permissible weight (tpw) up to 3000 kg and DKK 17 590 annually for cars with tpw between 3000 and 4000 kg. For cars used for both private and commercial purposes the rates are 50%. Cars used exclusively for commercial purposes are free of charge.	Fuel efficiency. Weight (for lorries)	
Estonia	Heavy goods vehicle tax. Varies from 0 to 232,60 (per quarter) EUR depending on the combination of following factors: weight range (12 tonnes to 40 and more tonnes), axel combination (2, 3, 4, 2+1, 2+2, 2+3, 3+2, 3+3), type of suspension (air, other)..	Weight range, Axle combination. Type of suspension.	Exemptions apply for Defence Force, Defence League, Enforcement Force and Rescue Service, local authorities, NGOs, Foundation and business vehicles intended for rescue operations, heavy goods vehicles.
Finland	**Annual tax for passenger cars and delivery vans** based on CO_2 emissions. If the car does not have emission data in the Vehicular and Driver Data Register, the tax is based on the total mass of the vehicle. Tax rates vary from EUR 53.29 for vehicles emitting from 0g CO_2/km up to EUR 654.44 for vehicles emitting 400g CO_2/km or more. **A tax on driving power** is applicable for diesel passenger cars and vans, based on the total mass of the vehicle. The tax on driving power also applies to other cars and vans using less taxed fuels than petrol. For lorries there is an annual tax based on maximum gross weight, number of axles and use of trailer.	CO_2 emissions. Weight. Number of axles (lorries).	
France	**Company car tax** based on two components: CO_2 emissions and other air pollutants. For CO_2 emissions, rates vary from EUR 1 for each gramme emitted for cars emitting from 20g CO_2/km up to 60g CO_2/km, to EUR 29 for each gramme emitted for cars emitting more than 250g CO_2/km. For other air pollutant, the rate is EUR 20 for unleaded gasoline and EUR 40 for diesel fuel. **Annual tax on polluting vehicles**. An annual tax is payable by owners of vehicles emitting from 250g CO_2/km for car registered in 2009 to 190g CO_2/km for cars registered as of 2012. The rate is EUR 160 a year.	Engine power. Electric propulsion. Type of fuel. CO_2 emissions.	Exemptions: cars more than 10 years old; cars used for public passenger transport and cars used for leasing or sale; electrically or gas propelled cars (for mixed oil and gas propelled vehicles exemption is reduced by half). Vehicles using both petrol and GPL are exempt at rate of 50%.
Germany	**Motor Vehicle Tax**. For passenger cars with a first registration from 1 July 2009, the Motor Vehicle Tax is based mainly on CO_2 emissions. It consists of a base tax (according to cylinder capacity) and a CO_2 tax. The rates of the base tax are EUR 2 per 100 cc (petrol) and EUR 9.50 per 100 cc (diesel) respectively. The CO_2 tax is linear at EUR 2 per g CO_2/km. Cars that were first registered before 1 July 2009 are taxed according to their polluting emissions (EURO-Norm) and cylinder capacity.	Polluting emissions. Cylinder capacity. CO_2 emissions. Electric propulsión.	Cars with CO_2 emissions below 95 g/km are exempt from the CO_2-element. Only the base tax is due. Exemption for pure electric cars for ten years after the first registration, if the car is registered between 18 May 2011 and 31 December 2025. The time-limited tax exemption is only available until 31 December 2030 at the latest.

Country	Taxes	Criteria	Tax benefits/Exemptions
Greece	**Annual road tax on private passenger cars** registered for the first time in Greece/ European Union/ European Economic Space before 31.10.2010 (as well as those with international initial registration before 2002), and also motorcycles regardless of their date of registration: based on cylinder capacity from EUR 22 to EUR 1 380. For the above category, there is an extra criterion of years of circulation of cars. Private passenger cars and taxis registered for the first time in Greece/ European Union/ European Economic Space after 1.11.2010: based on CO_2 emissions from EUR 0 to EUR 3.72 per gram of CO_2. Annual road tax on trucks based on gross weight and on buses on the number of seats. Since 31.7.2020 new registration tax rates with a progressive tax scale on the taxable value (retail price before taxes) have been defined, which are further differentiated on the basis of CO_2 emissions for passenger cars and the emissions standard.	Cylinder capacity. CO_2 emissions. Electric propulsion. Gross weight (trucks). Number of seats (buses).	The main exemptions are: cars used by public authorities, municipalities, ambulances etc., cars used by disabled persons and members of foreign diplomatic services; electric cars, hybrid cars registered until 31.10.2010, with engine displacement under 1.549 cc; private passenger cars, registered after 1.11.2010 with CO2 emissions under 90g/km Motorcycles up to 300 cc cylinder capacity used in order to replace old technology ones (replacement should take place up to 31.12.2009). For motorcycles with cylinder capacity over 300 cc used in order to replace old technology motorcycles exemption applies for 5 years only following the date of first registration of the new motorcycle. Cars and motorcycles, registered with a valid permission of circulation, may be imported for a limited period up to six months per year, by the customs procedure of temporary importation. Exemptions from registration tax since 31.7.2020 is granted to hybrid cars with CO2 emissions less than or equal to 50 g/km are released. These are exempt from the registration tax by 75%; hybrid cars with CO2 emissions more than or equal to 51g/km are exempt released from the registration tax by 50%; Moreover, caravans are also exempt automotive wheelhouses are released from the registration tax by 75%.
Hungary	Motor vehicle tax levied according to capacity of engine (in Kw) of passenger cars and motorcycles. The tax base for busses, semi-trailers and caravans is the unladen weight of the vehicle. For lorries the tax is based on net weight plus 50 % of cargo weight. The tax rate for passenger cars and motorcycles is from HUF 140/kW to HUF 345/kW depending on the age of the vehicle (the older the vehicle, the less is due). For lorries, busses, semi-trailers the tax rate is HUF 850/100 kg of the tax base, if the vehicle is equipped with road-saving axles. The tax rate for other lorries, trailers is HUF 1380/100 kg.	Engine capacity. Weight (for lorries). Type of axles (for high-duty vehicles). Electric propulsión.	Exemption for vehicles: owned by budgetary agencies and religious organisations; owned by social organisations, foundations not subject to profit tax, used for public transport or fire service; owned by persons seriously disabled or by persons who regularly transport seriously disabled persons up to 13 000 HUF. The tax exemption is available for one vehicle, if its engine capacity does not exceed 100 kW; passenger cars equipped with environment-saving engine.
Iceland	**A disposal charge** of ISK 900 is levied on each vehicle for each six-month period. This charge is payable for fifteen years from the date of the first registration of the vehicle in Iceland, except when the vehicle is already 25 years old at the beginning of the payment year. The charge is an environmental tax that is intended to finance the disposal of the vehicle at the end of its useful life. Once the vehicle is delivered for scrap, an ISK 20 000 refund will be paid to the owner. Motor vehicles fuelled with diesel in excess of 10 tonnes are subject to a special weight/ distance tax, calculated on the basis of the weight of the vehicle and the number of kilometres driven. Owners of diesel vehicles that weigh less than 10 tonnes do not pay a weight/distance tax. **A semi-annual road tax on passenger cars** is levied based on the vehicle's carbon dioxide emissions declared by the car manufacturer for combination of city and road driving. Where emission data are not available, the tax rate is based on the weight of the vehicle. The semi-annual road tax is ISK 150 for each gram of carbon dioxide emission for emission above 121 grams, in addition to the minimum fee which is ISK 6 225.	Weight Distance CO_2 emissions	
Ireland	**Road tax on private cars** based on CO_2 emissions. Rates vary from EUR 120 (for 0g CO_2/km) to EUR 2350 (above 225g CO_2/ km). Tax on commercial vehicles based on net weight: from EUR 333 (<3000 kg) up to EUR 5195 (>20 000 kg)	CO_2 emissions. Weight. (commercial vehicles). Electric propulsión.	Electrically propelled vehicles: EUR 120 flat rate – private and EUR 92 flat rate – commercial not over 1 500kg

Country	Taxes	Criteria	Tax benefits/Exemptions
Israel	**Annual licensing fees**: private and commercial vehicles weighing up to 3500 kg in total: the vehicles are divided into seven groups (generally the price). The annual licensing fees differentiate according to the year of vehicle production and the group the vehicle belongs to the annual licensing fees range between NIS 720 to NIS 4 548. Commercial vehicles above 3 500 kg, with diesel engine are subject to a different tariff.	Price. Age. Category.	Vehicles for disabled person, diplomats, United Nations Organisations, specific charity institutions.
Italy	**Annual Ownership Tax**: From EUR 2.58 per KW to EUR 4.95 per KW according to engine cylinder capacity and polluting emissions. Regions are entitled to vary the national rate. A surtax on use of cars and vehicles intended for the transport of persons or goods applies at a rate of EUR 20.00 for each KW exceeding 185 KW in engine power. Such surtax is reduced after five, ten or fifteen years from the construction of the vehicle by 40%, 70% and 85%, respectively.	Engine power Polluting emissions Electric propulsion	Exemption for historical vehicles over 30 years old recognised as having special historical or collectors' interest; flat rate road tax on other vehicles over 30. An exemption of 100% from ownership tax is allowed for electric, LPG and CNG vehicles in the first 5 years (from the first registration) and an exemption of 75% afterwards in many regions. 100% exemption also applies to vehicles for disabled persons.
Japan	**Motor Vehicle Tonnage Tax** (National) levied on commercial vehicles according to weight. The tax rate for passenger vehicles varies from JPY 4 100 per 0,5 ton up to JPY 6 300 per 0,5 ton (from JPY 2 600 up to JPY 2 800); for lorries from JPY 3 300 per ton up to JPY 6 300 per ton (from JPY 2 600 up to JPY 2 800) **Automobile Tax** (Prefecture) levied on commercial vehicles according to cylinder capacity. For passenger vehicle from JPY 25 000 up to JPY 110 000 (from JPY 7 500 up to JPY 40 700); for lorries: (4-5 tons maximum load) JPY 25 500 (JPY 18 500); for buses: (41-50 passengers capacity) JPY 49 000 (JPY 17 500). **Light Vehicle Tax** (Local): levied on light vehicles and motorcycles according to cylinder capacity and standards.	Weight. Cylinder capacity. Impact on the environment (incl. Electric/fuel cell propulsión).	Special measures of reduced Motor Vehicle Tonnage Tax Vehicles with low impact on the environment, barrier-free buses and taxis, trucks with collision damage alleviation brake control device, etc. Special measures of refunded Motor Vehicle Tonnage Tax Used vehicles properly scrapped or destroyed by certain disasters before the expiry date of valid period of inspection certificate. Special measures of reduced Automobile Tax and Light Vehicle Tax Vehicles with low impact on the environment.
Korea	**Automobile Tax**: rates are applicable according to cylinder capacity from KRW 80 per cc up to KRW 200 per cc for non-commercial vehicles; and from KRW 18 per cc to KRW 24 per cc for commercial vehicles.	Cylinder capacity	Full exemption for disabled persons.
Latvia	**Annual tax for passenger cars:** based on CO_2 emissions for cars with first registration after 31 December 2008. For cars with first registration from 2005 to 2008, the tax is based on gross weight, motor capacity and maximum motor power. The annual tax for passenger cars registered before 2005 is based only on gross weight. **Annual tax for motorcycles**: based on motor capacity **Annual tax for heavy goods vehicles:** based on gross weight and number of axes and type of suspension if gross weight exceeds 12 000 kg.	CO_2 emissions. Weight (passenger cars and heavy goods vehicles). Motor capacity (passenger cars and motorcycles). Maximum motor power (passenger cars). Number of axes and type of suspension (heavy good vehicles). Electric propulsión.	The main exemptions are for: -a car, motorcycle, tricycle or quadricycle, the owner, holder or driver of which is a disabled person -a vehicle, the owner, holder or driver of which is a representative of a diplomatic, consular or international organisation or a person who has diplomatic or consular privileges and immunities -an emergency vehicle - vehicles having been registered or being registered with the status of historic motor vehicle. - electric vehicles.
Lithuania	**Charge for busses and heavy vehicles** (vignettes). Applicable annual tax rate threshold - from EUR 304 (for busses) up to EUR 1071 (for heavy vehicles of more than 12 tonnes of gross laden weight).	Vehicle type, category, class and group, emission class, gross laden weight.	Exemptions: vehicles used by public authorities; vehicles specially designed for the use and (or) transport of disabled persons; vehicles of health care institutions (ambulance and resuscitation cars); buses on local (city and suburban) regular routes.
Luxembourg	**Automobile Tax**: the annual circulation tax is based on CO_2 emissions. Tax rates are calculated by multiplying the CO_2 emissions in g/km with 0.9 for diesel cars and 0.6 for cars using other fuels respectively and with an exponential factor (0.5 below 90 g/km and increased by 0.1 for each additional 10 g of CO_2 /km). Tax on heavy vehicles (also known as "Eurovignette") is levied on vehicles (lorries) with a gross weight of 12 tons or more for the use of motor ways. Tax also varies according to Euro norms.	CO2 emissions Electric propulsion	Exemptions: vehicles for disabled people; historical vehicles; cars used by public authorities; electrically propelled cars.

Country	Taxes	Criteria	Tax benefits/Exemptions
Mexico	Starting 2012, the tax on ownership was eliminated as a Federal Tax. State governments may impose a tax on ownership and/or periodic registration. **Registration fee** is MXN 990 on average and **Tax on ownership** usually varies from 3.0% to 19.1% based on value, type of vehicle and number of passengers.	Value Type of vehicle Number of passengers Electric propulsion	States exempt hybrid and electric vehicles used for public passenger transport; Some states provide exemptions for particular uses. Some states provide a subsidy of 100% for vehicles of any value.
Netherlands	Motor vehicle tax is based on the dead-weight and the fuel type used. A Provincial surtax is applicable. Tax on heavy vehicles (also known as "Eurovignette") is levied on vehicles (lorries) with a gross weight of 12 tons or more for the use of motor ways in the Netherlands. Tax also varies according to Euro norms (diesel category).	For motor vehicle tax: Fuel used Weight Region (province) CO_2 emissions For tax on heavy vehicles: Number of axles Polluting emissions	Vehicles with a CO_2 emission of 0 are exempt. Low-emissions vehicles (CO_2 is not exceeding a level of 50 g/km) pay 50% of the taxes. Other examples of exemptions are: (Animal) ambulances; vehicles used by fire brigades and by the police/defence; funerary vehicles; vehicles used to clean, maintain or construct roads; taxis and vehicles older than 40 years. Other special regimes apply such as reduced tax rate for delivery vans owned by entrepreneurs and used for business purposes for at least 10% and for vans equipped for and used by disabled persons.
New Zealand	**Vehicle license fees**. Most vehicles are required to be continuously licensed in order to operate on public roads. Vehicle licenses are valid for up to 12 months. Fees vary depending on the type of vehicle being licensed. For a private passenger vehicle, the base fee for a 12 month license is NZD 52.11.	Vehicle type	
Norway	**The traffic insurance tax** replaced the annual motor vehicle tax from 2018. Daily tax: NOK 9.47 for diesel cars without factory-fitted particle filter and NOK 8.12 for other cars, NOK 5.65 for motorbikes. NOK 1.31 for moped, tractors etc.	Vehicle type Electric propulsion Particle filter	Electricity powered vehicles are exempt from the Traffic insurance tax.
Poland	Annual Motor Vehicles Tax levied at municipal level on heavy goods vehicles of maximum permissible gross laden weight over 3.5 tons, road and ballast tractors, trailers and semi-trailers and buses.	Weight Type of vehicle Number of passengers for busses	Vehicles belonging to diplomatic representations, consular offices and other foreign missions. Transport vehicles constituting mobilisation supply. Special vehicles and vehicles used for special purposes. Historic vehicles.
Portugal	**Annual state and municipal tax** on the ownership of a vehicle (reformed on 1st July 2007). For passenger vehicles and mixed use cars with gross weight not exceeding 2500 Kg registered after the reform, tax rate is based on motor capacity and CO_2 emissions. For vehicles registered since 1981 up to the reform rates vary depending on motor capacity or voltage, date of registration and fuel type. **Vehicle excise duty on lorries** above 2.5 tonnes used in public and private transport of merchandise.	Motor capacity CO_2 emissions Electric propulsion Weight Number of axels Vehicle type and fuel Type of suspension	Vehicles owned by the State (central, regional or local administration), fire brigades, foreign States, diplomatic and consular missions, international organizations, specialized European agencies and disabled persons; vehicles seized by the State for as part of a criminal procedure. Are also exempt ambulances, passengers vehicles destined to rental or taxi services, tractors, funerary vehicles, non-motorized vehicles that are purely electric or moved by renewable energies. From 1st April 2020, a tax exemption is also applied to certain types of vehicles with less than 30 years old, considered of historic interest and whose annual circulation does not surpass 500 kilometres.
Slovak Republic	Motor Vehicle Tax is imposed only on vehicles that are registered in the Slovak Republic and are used to conduct business activities during the tax period. Rates vary depending on type, weight, cylinder capacity, number of axles (for utility vehicles and buses) of the vehicle and type of engine.	Usage Vehicle type (passenger cars) Weight Cylinder capacity (utility vehicles and buses) Number of axles Type of engine	**Exemption:** vehicles for diplomats - vehicles used by diplomatic missions and consular offices, vehicles used for emergency services (first aid), vehicles for public services - public buses, vehicles used solely in agriculture or forestry. **Tax reduction (50%)** for hybrid motor vehicles or hybrid electric vehicles, vehicles using compressed natural gas (CNG) or liquefied natural gas (LNG), hydrogen-powered vehicles, vehicles which were used for combined transport at least 60 times. The tax rate is reduced for the period of 108 months from the date of the first registration of vehicle (for the first 36 months by 25%, for the next 36 months by 20% and for the next 36 months by 15%).

Country	Taxes	Criteria	ax benefits/Exemptions
Slovenia	Circulation tax (levied on an annual basis) – an annual fee for the use of road transport vehicles is paid once a year for the use of motor vehicles and trailers in Slovenia by vehicle owners. The fee is paid at the time of renewal of registration certificate. By paying an annual duty a person acquires the right to use a registered vehicle in road traffic for the next 12 months. The amount of tax depends on the category of the vehicle and is proportionate to the duration of the registration period in a certain year. Vehicle deregistration duty is paid for motor vehicle category M1, N1 and L2e for the first time after 1 year of vehicle deregistration and then every year at vehicle deregistration date. Duty is paying for 10 years from the last deregistration. The duty is 25% of circulation tax, but not less than EUR 25. The duty for three-wheeled cycles with electric engine, is EUR 20.	Cylinder capacity, Engine power, Weight Polluting emissions Electric propulsion Type of suspension Number of seats	Tax exemptions: Vehicles exclusively using electricity for power, tractors and tractor trailers, motorcycles, three-wheeled cycles with engine capacity up to 50 cc and light four-wheeled cycles, light trailers with maximum permissible weight up to 750 kg, motor vehicles registered to the Slovenian Army, Civil Protection, Mountain Rescue Service, Cave Rescue Service, Underwater Rescue Service, Disaster Response Service for Ecological and other Disasters and for Search Operations at Sea, Ecological Laboratory with mobile unit, police and fire-fighting vehicles, ambulances, motor vehicles and trailers registered for diplomatic and consular missions, vehicles owned by certain international organizations, and vehicles used for the transport of disabled persons and old timers. Tax reduction for low polluting trucks Trucks of category N1: tax reduction for EURO 5 (-25%) and EURO 6 and higher (-35%) and tax increase for EURO 3 (+10%), EURO 2 (+20%), EURO 1 (+30%) and EURO 0 or lower (+40%); Trucks of category N2, N3 and buses (M2, M3): tax reduction for EURO 5 (-25%) and EURO 6 and higher (-35%) and tax increase for EURO 3 (+10%) EURO 2 (+20%), EURO 1 (+30%) and EURO 0 or lower (+40%) Tax reduction for buses and trucks with air suspension (-15%) Tax reduction for old-timers (-80%) and vehicles acquired for transport of families with four or more children (-50%).
Spain	Motor Vehicle Tax (levied by municipalities) based on engine power for passenger cars, passenger capacity for buses, loading capacity for trucks and cylinder volume for motorcycles.	Vehicle type Engine power Cylinder capacity	**Tax exemptions:** Official vehicles belonging to public bodies of diplomatic offices, ambulances, vehicles adapted to disabled people, public transport vehicles over nine seats, tractors and other vehicles of agricultural use; historic vehicles.
Sweden	The annual circulation tax for cars from 2006 and later or, older cars that meet at least Euro 4 exhaust emission standards, is based on CO2 emissions. Also campers, light goods vehicles and light buses that are taken in to use in 2011 or later are taxed based on the CO2 emissions. The tax consists of a basic rate of SEK 360 plus SEK 22 for each gram CO2 the vehicle emits above 111 g/km. If the vehicle can be driven with diesel fuel this sum is multiplied by 2.37 plus SEK 250 or 500 depending on vehicle year. For vehicles that can be driven with alternative fuels, the tax is SEK 360 plus SEK 11 for each gram CO2 the vehicle emits above 111 g/km. New vehicles taxable for the first time after the 1 July 2018, vehicle model year 2018 or later, with high emissions of CO2 will be taxed at a higher rate for the first three years. Vehicles running on gasoline fuel, the tax consists of a basic rate of SEK 360, plus a CO2 amount consisting of SEK 82 for each gram of CO2 the vehicle emits above 95 g/km up to 140 g/km and SEK 107 for each gram of CO2 the vehicle emits above 140 g/km. If the vehicle can be driven with diesel fuel the same principles apply plus that the amount of CO2 g/km the vehicle emits is multiplied with 13.52 plus SEK 250. After the first three years the CO2 related amount is SEK 22/gram over 111 gram per kilometre	Weight. CO_2 emissions. Type of fuel. Electric propulsión. Electric consumption.	An exemption from annual circulation tax applies to green cars during the first five years. That set of rules has expired but still applies regarding vehicles that are taxable for the first time before the 1 of July 2018. New rules entered into force the 1 July 2018 for new vehicles taxable for the first time after the 1 of July 2018 and classified as green vehicles with low emissions of CO2 qualifying for a bonus at purchase. The exemption applies to cars, campers, light goods vehicles and light buses with low emissions of CO2 in proportion to the vehicle's weight. The vehicle's emissions of CO2 shall not exceed a calculated value of (95 + 0,0457 x (the vehicle's weight in kg – 1 372)). For alternative fuel vehicles the value is calculated; (150 + 0.0457 x (the vehicle's weight in kg – 1 372)). Electric cars should not consume more electricity than 37 kWh/100 km.

Country	Taxes	Criteria	ax benefits/Exemptions
Switzerland	**Annual motor vehicle tax - Cantonal (provincial) tax,** levied according to the weight or engine volume of the vehicle. **Use of Swiss motorways** (first and second-class motorways) is generally subject to a federal charge levied in the form of a motorway charge sticker, which costs CHF 40. The obligation to display a motorway charge sticker generally applies to motor vehicles and trailers with a total weight of up to 3.5 tons each. This group comprises primarily passenger vehicles, motorbikes, vans, trailers, etc. Motor vehicles and trailers with a total weight exceeding 3.5 tons (so-called heavy vehicles) require a motorway charge sticker if they are not subject to the heavy vehicle charge. These include, for example, heavy utility vehicles (e.g. crane lorries). The performance-related heavy vehicle charge (LSVA) depends on the total weight, polluting emissions and kilometres driven in Switzerland. It is levied on all motor vehicles and trailers that have a total permissible laden weight of more than 3.5 tons, are used to transport goods, are registered in Switzerland or abroad and are driven on the Swiss public road network. The lump-sum heavy vehicle charge (PSVA) is levied in the form of a lump sum on heavy motor vehicles for the following vehicle types that are driven on the Swiss public road network: heavy passenger vehicles, heavy campervans, motor-homes and caravans, vehicles used for transporting passengers (coaches, buses), tractors and motor carriages, motor vehicles for fun fairs and circuses. Other motor vehicles for the carriage of goods and with a maximum speed of 45 km/h.	Weight. Engine volume. Kilometres driven. Polluting emissions. Electric propulsión.	A reduced rate of the motor vehicle tax usually applies to electric and agricultural vehicles.
Turkey	Motor Vehicle Tax. Motor vehicles that are in scales specified in the Law and registered at the related government institution are subject to motor vehicle tax. The tax is paid in two instalments. Scales: automobiles, off road vehicles and similar vehicles and motorcycles which are registered after 31/12/2017 are taxed under the scale No 1, Automobiles, off road vehicles and similar vehicles which are registered before 31/12/2017 (this day included) are taxed under the scale No 1/A, Minibuses, vans, motor caravans, buses and similar vehicles, small trucks, trucks, tow trucks and similar vehicles are taxed under the scale No II,-Planes and helicopters are taxed under the scale No IV.	Weight. Number of seats. Age. Value. Vehicle type. Cylinder capacity. Engine power. Electric propulsión.	Vehicles in scales No I, I/A and II that have only electric motors are taxed over 25% of the tax amounts applied to the same type of vehicles. Vehicles that are registered in the name of government institutions under general budget, government institutions under special budget, social security institutions, special provincial administrations, municipalities, village legal personalities, Turkish Red Crescent Society and Disabled people are exempt.
United Kingdom	**Vehicle Excise Duty (VED)** on lorries is set according to the number of axles, weight and type of vehicle. Cars that are presented for registration in the UK on or after 1 March 2001 – and before 01/04/17, on the basis of a type approval certificate specifying a carbon dioxide (CO_2) emission figure, attract a rate of VED according to the amount of CO_2 emitted and the type of fuel used. These cars fall within a 13-banded graduated VED system. The bands are labelled A-M, with band A containing the least polluting vehicles and band M comprising of vehicles that have high CO_2 emissions. Full details can be found at www.direct.gov.uk/Motoring Cars registered on or after 01/04/18 on the basis of a type approval certificate specifying a carbon dioxide (CO2) emission figure, attract a rate of VED for its first vehicle licence according to the amount of CO_2 emitted and fuel used. For the second vehicle licence, vehicles with a list price exceeding GBP 40 000 attract a standard rate of VED plus an additional rate of VED. Vehicles with a list price of GBP 40 000 or less attract a standard rate of VED. For private cars which do not fall into the above graduated VED system there is a two-tier threshold: vehicles not over 1549cc pay an annual rate of duty of GBP 145, and those over 1549cc pay a rate of duty of GBP 230.	Vehicle type. CO_2 emissions. Type of fuel. Electric propulsión.	Tax exemption applies to vehicles for disabled people, historic vehicles, which are 40 years old, limited use vehicles, agricultural machines, mowing machines, steam powered vehicles, electrically propelled vehicles, and electrically assisted pedal cycles. Vehicles belonging to public bodies such as ambulances, fire engine, police cars, etc.

Country	Taxes	Criteria	Tax benefits/Exemptions
United States	**Heavy Highway Vehicle Use Tax** is imposed on the use of trucks weighing 55 000 pounds or above. For those trucks (except logging trucks) weighing no more than 75 000 pounds, the tax is USD 100 per year plus USD 22 for each 1 000 pounds in excess of 55 000 pounds. For those trucks weighing more than 75 000 pounds, the tax is USD 550. For logging trucks, the tax is USD 75 per year for trucks weighing at least 55 000 pounds plus USD 16.50 per 1 000 pounds in excess of 55 000 pounds. For logging trucks weighing more than 75 000 pounds the tax is USD 412.50. A credit may be claimed for the tax in the following year if the vehicle was driven 5 000 miles or less (7 500 miles or less for agricultural vehicles.). State and local governments may impose a periodic registration, operators' license, parking and inspection fees as well as property taxes.	Weight (for trucks)	

Source: OECD, Consumption Tax Trends 2022: VAT/GST and Excise, Core Design Features and Trends.

The level of taxation on the ownership or utilization of motor vehicles varies significantly among OECD countries.

The primary criteria utilized to determine these taxes closely resemble those employed for assessing taxes on sales and registration, including vehicle type, fuel type, engine capacity, age, emissions of pollution and fuel efficiency.

6 FINAL REFLECTIONS

The above analysis of the different lines followed by the EU Member and OECD countries when establishing vehicle sector tax categories led to the reflections below.

6.1 PROFOUND DIFFERENCES AMONG OECD AND EU MEMBER STATE TAX SYSTEMS

A first conclusion is that there are profound differences among OECD and EU Member State tax regimes that hinder the achievement of a single market in the case of European Union.

Motor vehicle taxation can impact the operation of the motor vehicle market, particularly in the case of registration taxes.

Typically, registration tax paid in the country of initial registration is not refunded when a vehicle is transferred from one country to another. When registration tax must be paid again in the destination country where the car is intended to permanently remain, double taxation arises. Moreover, significant disparities in tax systems exacerbate fragmentation in the car market.

Vehicle taxation in the European Union needs to be addressed, because as we have seen, there is no uniformity across different countries, whether regarding the appropriate requirement of the Registration Tax, or the configuration of registration and road taxes.

6.2 A NECESSARY GREEN REFORMULATION OF VEHICLE REGISTRATION AND ROAD TAXES: THE "POLLUTER PAYS" PRINCIPLE

Despite the fact that the Directive began to be progressively implemented by the different States, it ultimately failed, largely due to the opposition of the Member States that had established Registration Taxes. However, the trajectories followed by many Member States point to a green reformulation of vehicle taxation. In our opinion, further progress is required regarding the generalised configuration of a truly environmental tax to comply with the "polluter pays" principle. Today, we have before us a scattered and limited series of measures, mostly designed as a collection of instruments that are poorly orientated towards the environment, and no global tax reform in this domain that could lead to a green tax reform (COBOS GÓMEZ; FERNÁNDEZ DE BUJAN Y ARRANZ, 2016).

6.3 TAX QUANTIFICATION BASED ON EMITTED CO_2

The European Union has aimed at reducing CO_2 emissions and using tax instruments to meet Kyoto Protocol goals. In this line, over the last few years, many Member States have restructured their tax base in order to make it totally or partially dependent on CO_2

emissions[35]. This fact is a positive development[36], but two important considerations must be taken into account.

The first is that pollution is not limited to this greenhouse gas. In this sense, some element should be incorporated referring to the emission of other types of polluting substances, since CO_2 is not the only polluting gas to derive from the use of a vehicle (ÁLVAREZ GARCÍA; GARCÍA INÉS, 2006, p. 59). It would be necessary to add other forms of tax modulation already indicated by the European Parliament in 2006, such as carbon monoxide, unburned hydrocarbons, nitrogen oxide (responsible for toxic clouds) or other polluting particles (VILLAR EZCURRA, 2019). The time has also come to acknowledge that vehicle pollution is not exclusively linked to the emission of CO_2, that is, to the consumption of cars – which is a widespread assumption in Europe. The emission of nitrous oxide (NOX) should also be taken into account, as is already the case in some countries, e.g., in Japan, or in the State of California (USA) (ALMAGRO MARTÍN, 2012p. 15 et seq.).

The second consideration to take into account is the fact that the most polluting factor is the age of the vehicle and its technological lag, with its consequent deficient combustion. Owners usually find it difficult to acquire a new, less polluting vehicle, due to their limited purchasing power. If a strictly environmental tax is established, it will be borne by this group of taxpayers, since lower-income vehicle owners spend a higher percentage of their income per kilometre and use more polluting vehicles than high-income owners.

Nevertheless, the need to monetarily value taxpayer fiscal capacity in this regard may disappear with the establishment of a

[35] Thus, Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 (LCEur, 780) on the promotion of the use of energy from renewable sources established as a possible “support scheme”: “tax exemptions or reductions, tax refunds, renewable energy obligation support schemes including those using green certificates, and direct price support schemes including feed-in tariffs and premium payments” (Art. 2 (k)).

[36] Studies in the literature show that “the CO_2 emissions of the vehicles play a role in global warming. Therefore, while regulating the tariff for motor vehicle tax, it is important to constitute the legislation with a more environmentalist understanding” (TUNÇ, 2019, p. 76).

clear extra-fiscal goal, i.e., environmental protection (NOCETE CORREA, 2015, p. 141).

To our mind, two complementary measures should be established when designing these taxes: the level of pollutant emissions, and inevitably, the value of the vehicle[37]. Thus, a penalty coefficient could be incorporated for the most polluting vehicles, while a reduction coefficient could be applied to those that pollute the least (See CHICO DE LA CÁMARA; HERRERA MOLINA, 2008, p. 13). As mentioned earlier, we must not forget that a fiscal measure cannot be determined overlooking the criteria and general principles ruling tax regulation, because, clearly, "*the end does not justify the means*", a proverb that we could also apply to environmental goals (MENÉNDEZ MORENO, 2021). We believe that this configuration would be in line with what the European Commission conceived as an ideal tax in the draft directive, but above all, it would be in line with the principle of economic capacity, which must be inevitably present in any tax category.

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[37] As the older vehicles "belong to lower income groups due to their sales prices, it would cause further injustice in income distribution if harmful gas emission will be solely effective in tax base. In this context, there is a need for regulations where both the financial power principle and the environmental pollution are taken into account together" (TUNÇ, 2019, p. 74).

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