

Unpacking WLTP



Foreword

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After a year filled with unexpected challenges for the auto industry, JATO Dynamics confirms its commitment to bring further solutions and insights as part of the automotive intelligence we provide. The pandemic was just one of several big issues that OEMs, LSPs and many other players in the industry had to deal with – tougher emission regulations, acceleration across electrification plans and the consolidation of the industry, all shape the new reality.

WLTP implementation is part of this. To shine a spotlight on the various complexities surrounding the retrieval of real-time WLTP data, JATO has created the 'Unpacking WLTP' report series, composed

of three parts. In the first section, we review how CO₂ based vehicle taxation varies across European countries, and the subsequent impact this can have on both manufacturers and leasing service providers (LSPs) when calculating standard WLTP values for any vehicle.

The second segment of the report follows a single vehicle across France, Finland, Ireland and the Netherlands, and examines how its pricing can change significantly because of the difference in CO₂ based taxation policies. Finally, we analyse the difficulties that OEMs and LSPs face when considering the effects of options to any standard vehicle.

01 Across Europe: Navigating CO₂ based vehicle taxation

For some European countries, CO₂ based vehicle tax is influenced by WLTP values with each setting their own taxation policies.

This is of clear significance for European OEMs and LSPs, the majority of which operate across numerous countries and need to be aware of any local changes to vehicle taxation such as acquisition, ownership and company car taxes.

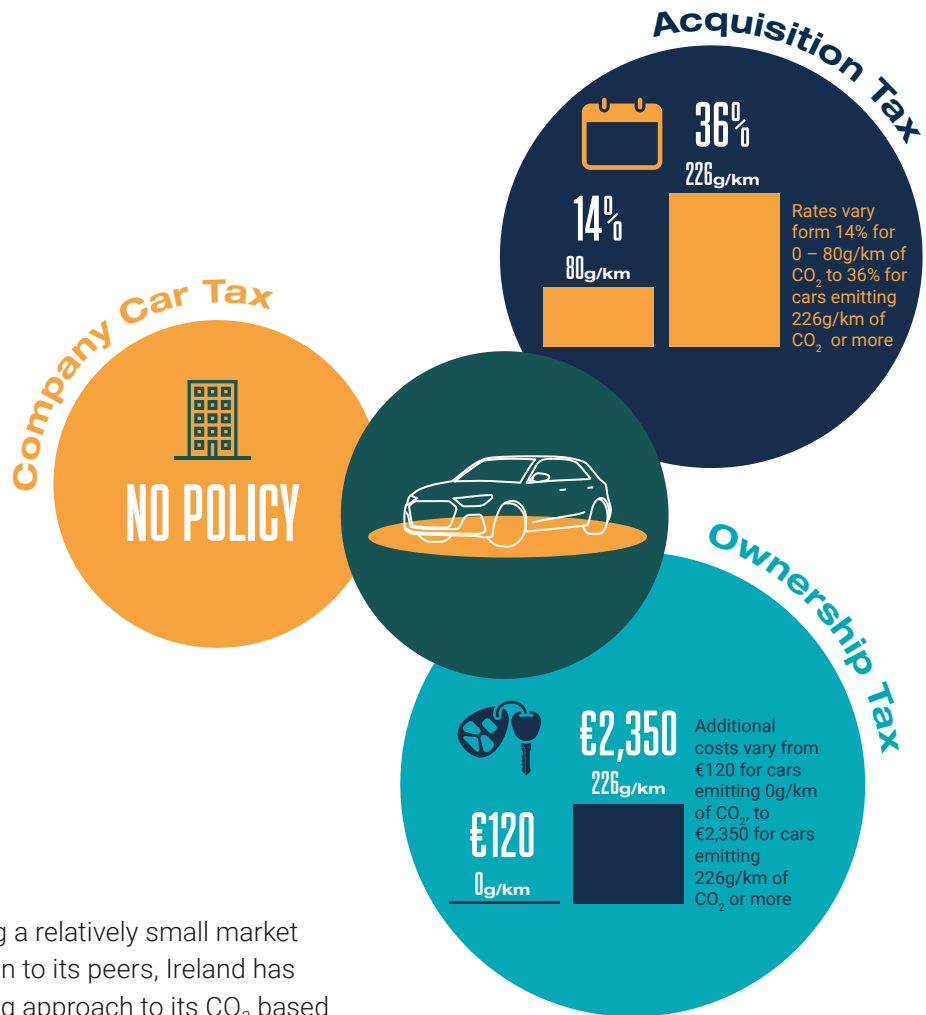
These policies are not set in stone and are subject to change at the discretion of each government. The smallest amendment can have significant influence on a vehicle's pricing. In order to stay competitive across local markets, OEMs must be able to

continuously monitor their competitors' responses to these policies, including options packages and total cost of acquisition comparisons in each country.

To illustrate the varying nature of these taxation policies, JATO has outlined the CO₂ based vehicle taxation for four European countries – some of those employing the strictest taxation policies. The following information has been sourced from the [ACEA's overview](#) of motor vehicle taxes in the European Union¹.

¹ As at 01.01.21

² https://acea.be/uploads/news_documents/ACEA_Tax_Guide_2020.pdf



Ireland

Despite being a relatively small market in comparison to its peers, Ireland has taken a strong approach to its CO₂ based vehicle taxation, and when buying a car in Ireland, customers are impacted by both acquisition and ownership tax measures.

Under the acquisition tax, rates vary from 14% for cars emitting up to 80g/km of CO₂ to 36% for cars emitting 226g/km of CO₂ or more.

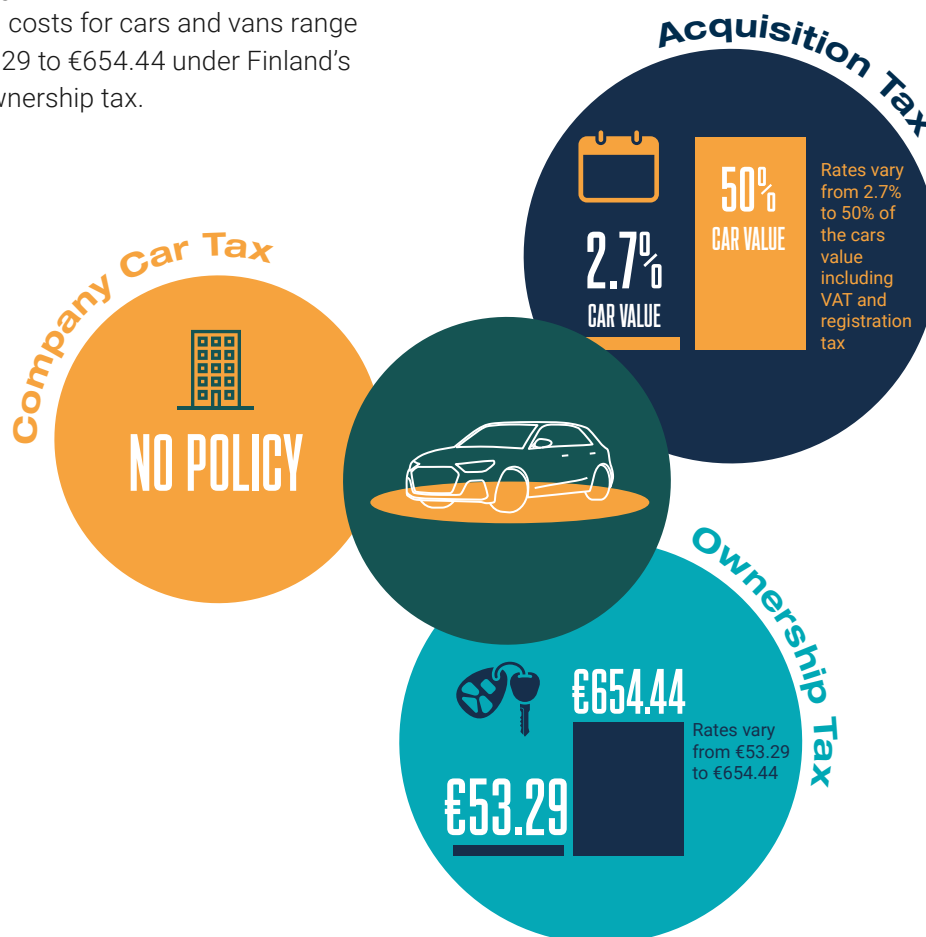
For cars registered from July 2008, under ownership taxes in Ireland, additional costs vary from €120 for cars emitting 0g/km of CO₂ to €2,350 for cars emitting 226g/km of CO₂ or more.

Finland

When making a purchase in Finland, customers are also impacted by both acquisition and ownership taxation.

Under the acquisition tax, rates vary from 2.7% to 50% of the vehicle's value – including VAT and registration tax.

Depending on the vehicle's emission levels, additional costs for cars and vans range from €53.29 to €654.44 under Finland's annual ownership tax.



France

France is Europe's second largest car market and is known for its rapid adoption of electrified vehicles. When it comes to vehicle taxation, customers in France are impacted by three CO₂ based policies: acquisition, ownership and company car tax measures.

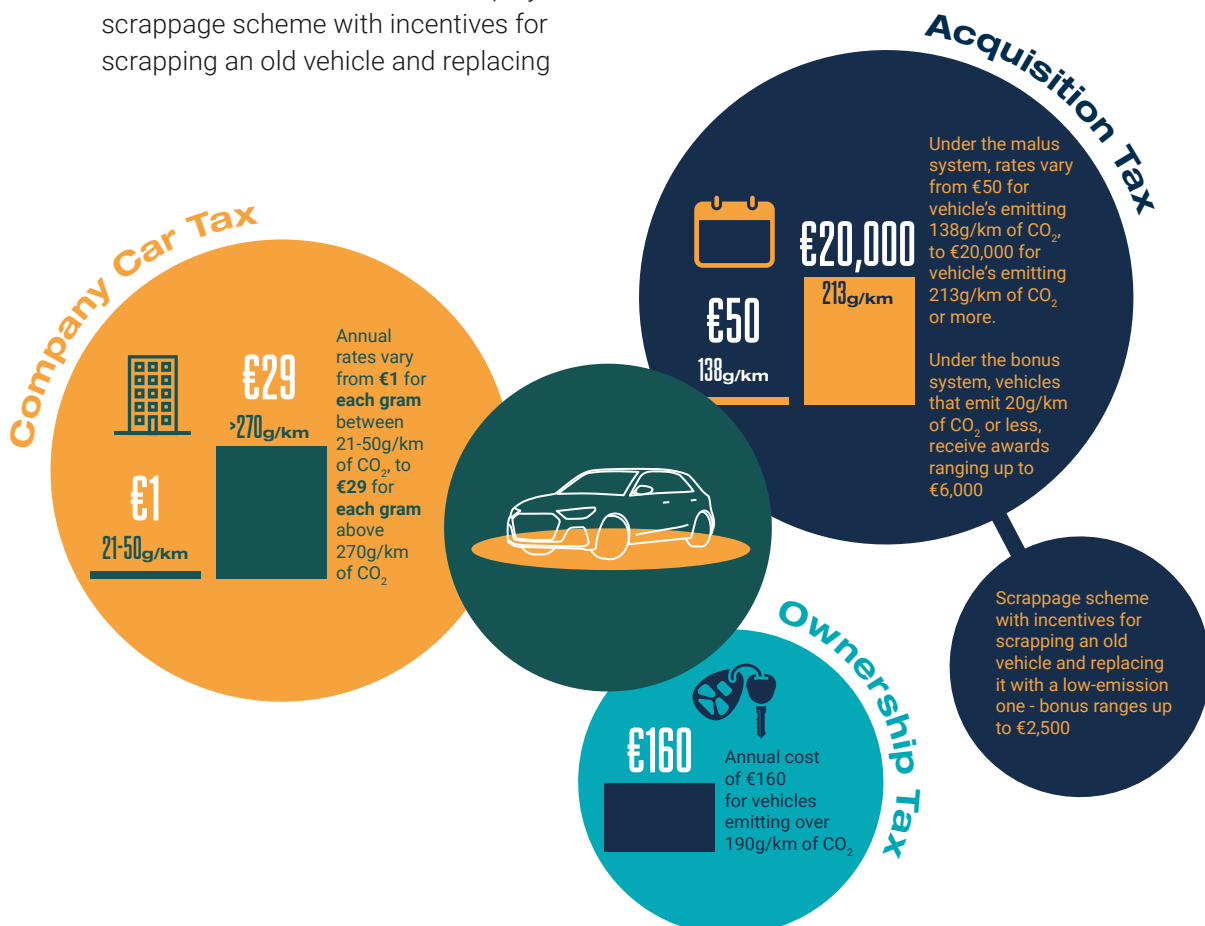
France employ a bonus/malus system (BMS) for acquisition costs, which alternately reward or penalise depending on the quantity of CO₂ emitted. The bonus is applied to vehicles that emit 20g/km of CO₂ or less, and the reward ranges all the way up to €6,000. The malus system, on the other hand, ranges from costs of €50 (for vehicle's emitting 138g/km of CO₂) all the way up to €20,000 (for vehicle's emitting 213g/km of CO₂ or over).

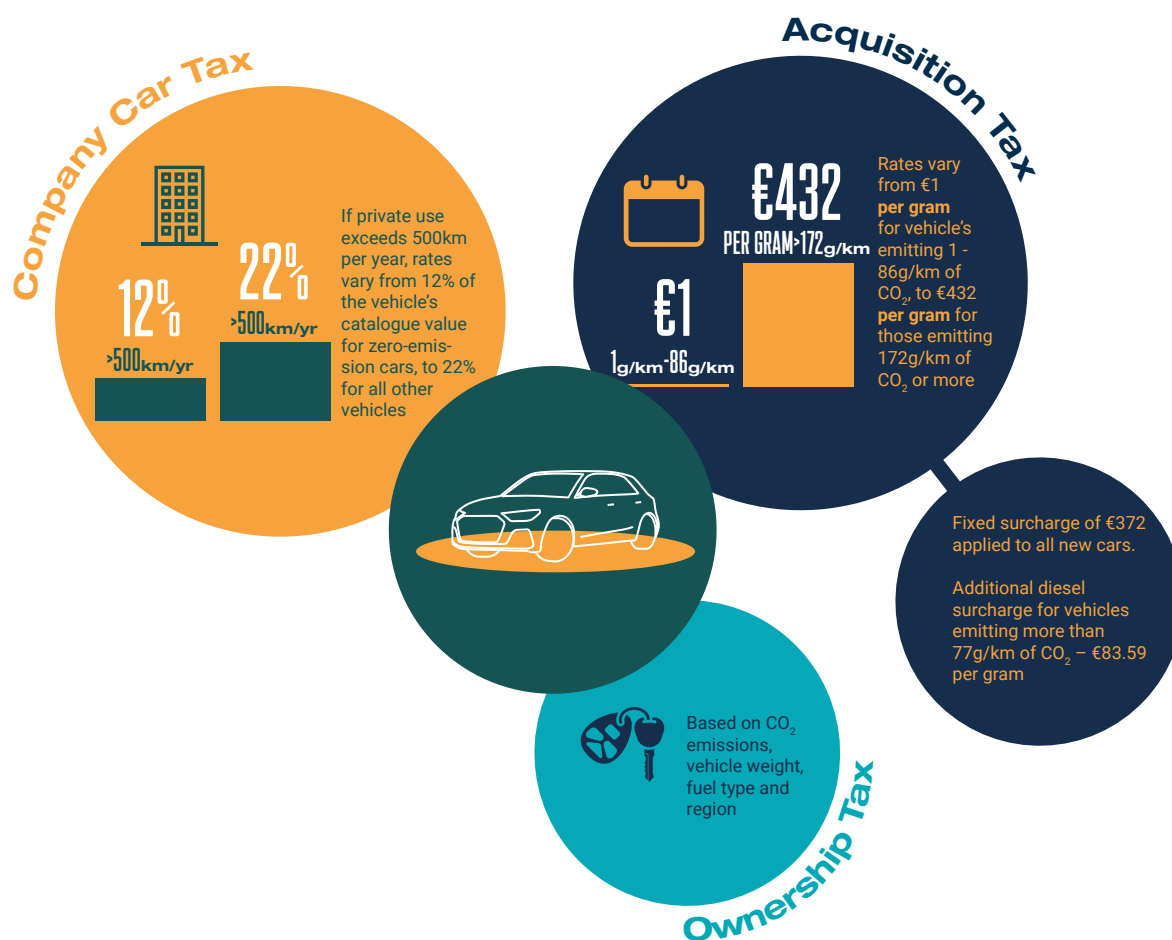
Unlike the others, France also employ a scrappage scheme with incentives for scrapping an old vehicle and replacing

it with a low-emission one – any vehicle emitting less than 116g/km of CO₂. The bonus ranges up to €2,500 depending on certain criteria such as model and tax revenue of the owner.²

French customers also face an annual ownership cost which dictates that cars emitting over 190g/km of CO₂ will see an additional €160 in taxes.

Under company car costs, annual rates vary from €1 for each gram emitted between 21g/km of CO₂ and 50g/km CO₂, to €29 for each gram emitted above 270g/km of CO₂. This system does not apply to vehicles emitting less than 21g/km of CO₂.





Netherlands

Despite only being a midsize market, the Netherlands has always been particularly progressive with its approach to regulation and electrification. Customers here face some of the strictest tax measures and are impacted by acquisition and company car taxation policies.

Under acquisition costs, rates vary from €1 per gram for vehicle's emitting 1g to 86g/km of CO₂. This increases to €432 per gram for those emitting 172g/km of CO₂ or more. There is also a fixed surcharge of €372 which applies to all new cars. On top of this, the Netherlands apply a diesel surcharge to vehicles emitting more than 77g/km of CO₂ - the high sum of €83.59 per gram.

Under company cars costs, the policy stands that if private use exceeds 500km per year, company car tax will kick in and rates vary from 12% of the vehicle's catalogue value for zero-emission cars, to 22% for all other vehicles.

Many governments are now enforcing strict CO₂ taxation policies to deter the rise of high emissions vehicles, making the seamless recovery of real-time WLTP data more crucial than ever. At all costs, OEMs and LSPs must be able to deliver this information or risk producing vehicles that do not comply with their customers' car policies, budgets and fleet strategies - damaging revenue and business relationships for all involved.



A taxing business:

WLTP taxation in practice

Every single new car sold in Europe now has a unique WLTP value. However, any alterations made to this standard version can impact the WLTP value – such as selecting an option.

With options like towbars and panoramic roofs, known to add approximately 2g/km of CO₂ to a vehicle's emission levels, any change to a car's specification must be calculated with complete accuracy.

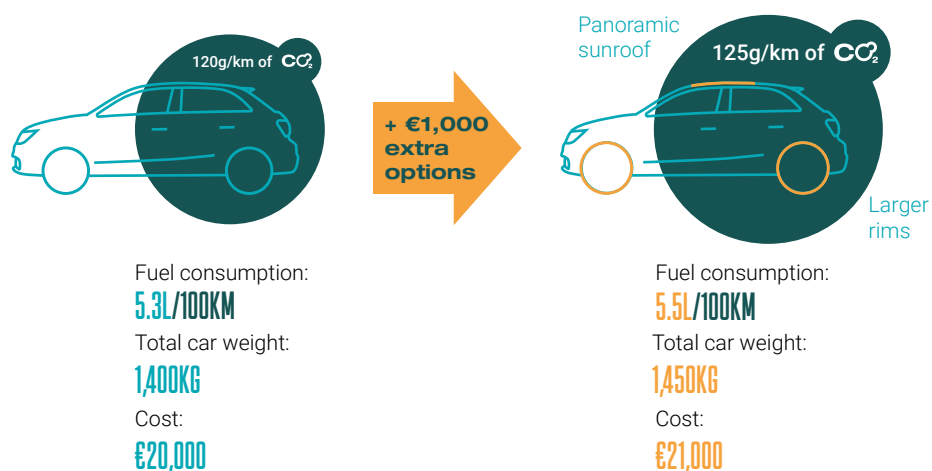
An additional complexity is that WLTP has the potential to influence local taxations across Europe such as acquisition, ownership and company car taxes. As each country sets its own taxation, this makes it difficult for OEMs and leasing companies to stay abreast of any changes that may impact their models and fleet choices.

To demonstrate the impact of regional taxation policies, JATO has illustrated how a single vehicle can see significant

changes to its price, simply by being taxed under varying European policies.³

Using an average petrol car – the standard CO₂ for this vehicle would typically be 120g/km. Its retail price is €20,000. Its fuel consumption is 5.3l/100km and the weight of the car is 1,400kg.

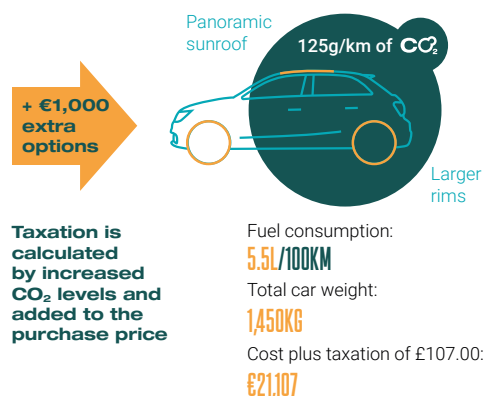
Once the extra options have been fitted (larger rims and a panoramic sunroof that cost €1,000) the CO₂ for this vehicle increases to 125g/km, the fuel consumption rises to 5.5l/100km, and the weight goes up by 50kg (now standing at 1,450kg).



Ireland

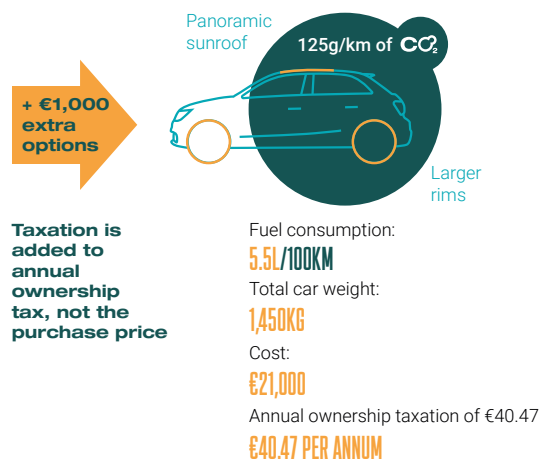
Under taxation policies in Ireland, the tax of the car will go up by a total of €107 due to the options applied. By buying that additional €1,000 worth of options, after tax the total price has now increased by €1,107 to €21,107.

In Ireland, taxation will also increase as a vehicle's CO₂ levels rise. For instance, if that same vehicle instead of moving from 120g/km to 125g/km, now moved from 170g/km to 171g/km, its tax would be €126 EUR for that one gram alone.



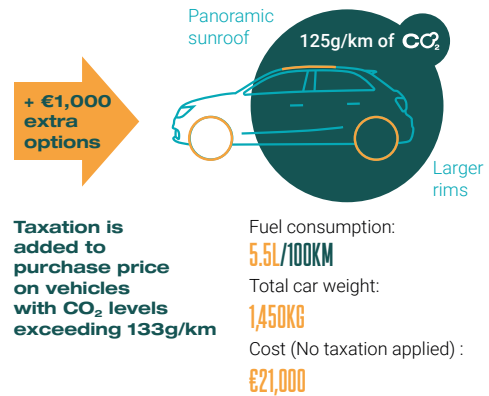
Finland

In Finland, the purchase price of the vehicle would not change. However, annual ownership tax would increase by approximately €40.47 each year due to the options fitted.



France

As the vehicle's CO₂ is below 133g/km, in France this car would face no additional penalty. However, if it were to emit 133g/km or more, then each additional gram of CO₂ would increase the CO₂ tax. For instance, if the car emits 133g/km then drivers will face a cost of €50, this then increases by €25 per each additional gram.

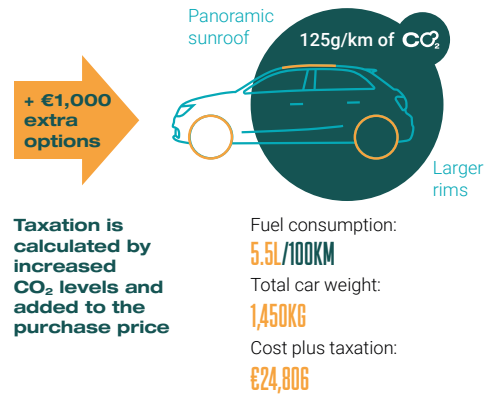


Netherlands

Without the options fitted, the CO₂ penalty for this vehicle is €3146 in the Netherlands. Adding the options then increases the CO₂ tax by €660, amounting to a total taxation cost of €3806 .

Similarly to Ireland, the CO₂ tax increases with higher emissions ranges, and each gram above 172g/km will incur a cost of €432 per gram.

A diesel car that emits over 77g/km of CO₂ receives an additional tax charge of 83.59 per gram on top of the normal CO₂ rate for petrol cars. This means that diesel cars in the highest tax malus are charged €515.59 for each additional gram of CO₂ above 172g/km.



Taking one standard vehicle and calculating its price after taxation across four European countries requires a weighty process. Now, multiply that by the 15 million new cars sold in Europe annually, each with a unique specification. And now, factor in all the alterations made by customers desiring specific options. The problem becomes clear.

Calculating each vehicles' unique WLTP value requires time and precision. For LSPs, it is vital to retrieve accurate WLTP figures that meet the requirements of their customers and their fleet policies – keeping their businesses operating at full capacity.

Similarly, without accurate on-demand WLTP data, manufacturers cannot examine important information for total acquisition cost comparisons and ensure their vehicles remain competitive in each local market. Without complete accuracy, they risk their models becoming undesirable and less affordable for their customers.





Weighing up your choices:

The impact of options

Due to the complexity of CO₂ based taxation policies, without real-time WLTP values from OEMs, LSPs may face vehicles that are no longer compliant with their customers' car policies, ultimately risking profit margins for their businesses.

Options that impact a vehicle's standard weight, drag or rolling resistance can also change a vehicle's WLTP values. Not only this but fitting a combination of options can also have a different effect on the CO₂ emitted, compared to options that are fitted individually.

For instance, it is perfectly possible that by adding a sunroof to a vehicle its CO₂ will increase by 2g/km. And, by adding larger wheels, the vehicle's rolling resistance and weight will also increase by 2g/km. However, fitting both the sunroof and the larger rims does not guarantee that the CO₂ will increase by 4g/km. This means that on demand WLTP data is key in order to configure up-to-date values, meet budgets, policy guidelines and estimate total cost of ownership.

Due to the strict CO₂ based motor vehicles taxes across some European countries, many manufacturers have started to adjust both the models and options available to customers. To demonstrate the tangible impact that WLTP has had on OEMs, JATO has conducted analysis on the vast changes seen across manufacturers' listings over the last four years.

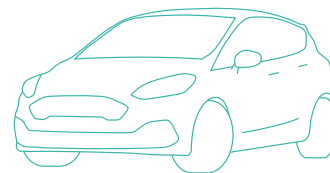
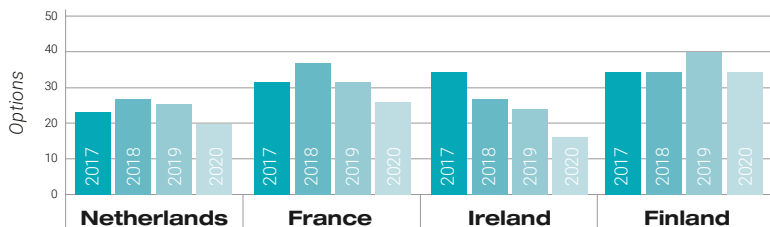
Changes to options by segments

Between 2017 and 2020, as manufacturers began planning for the transition from NEDC to WLTP, several steps were taken to ensure complete compliance with CO₂ targets and customer car policies. This includes the number of options and models made available by manufacturers.

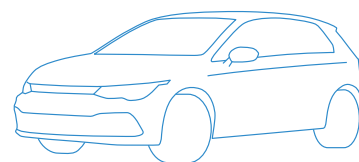
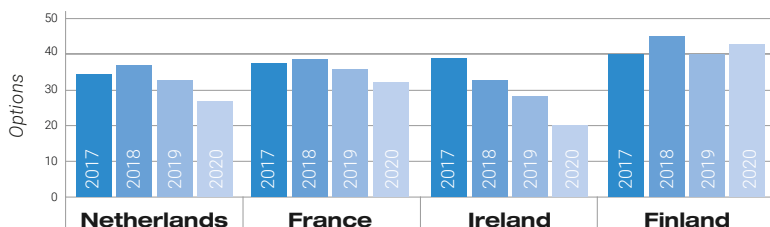
On the next page we demonstrate the changes seen across segments B (small cars), C (compact), small/medium SUVs, and large SUVs.

Average number of options available by segment

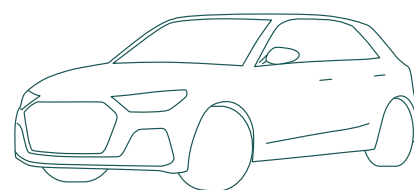
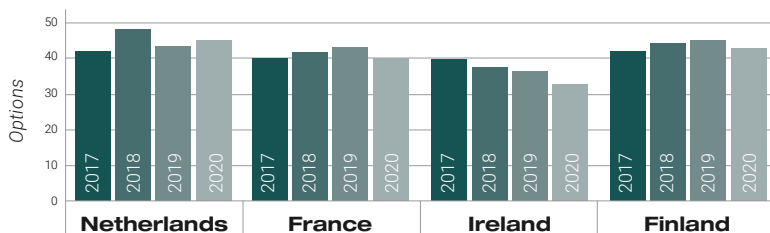
Segment B



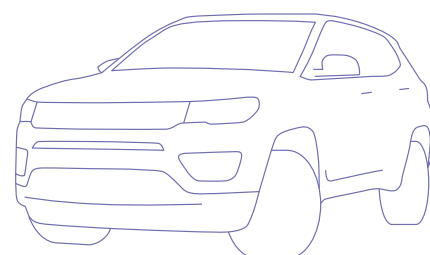
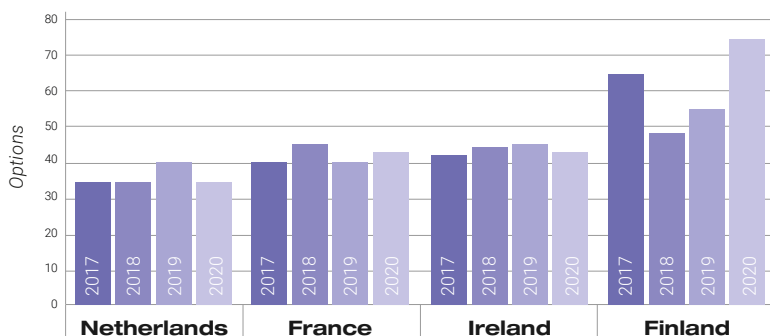
Segment C



Small / medium SUV



Large SUV



Not only has WLTP had an impact on the options available to customers, but manufacturers pursued all avenues to guarantee CO₂ compliance, going as far as reducing the average tyre size of their vehicles. As larger wheels result in greater friction and resistance, they can contribute heavily to a vehicle's CO₂ levels. Some manufacturers are also fitting low rolling resistance or energy saving tyres to their larger alloy wheels, leading to further complexity. For instance, a German premium brand is planning to install energy saving tyres across some of their

models in order to lower emission levels – estimating a considerable drop of 8g/km of CO₂ across their vehicles.

In line with consumer preference, over the years many vehicles have grown in size. And, in order to maintain correct proportions, their tyres also increased in diameter. However, in 2019 this trend was reversed in both Ireland and the Netherlands. With a number of manufacturers moving towards smaller tyres – indicating a broader shift towards CO₂ compliance.

The rise of Electric Vehicles (EVs)

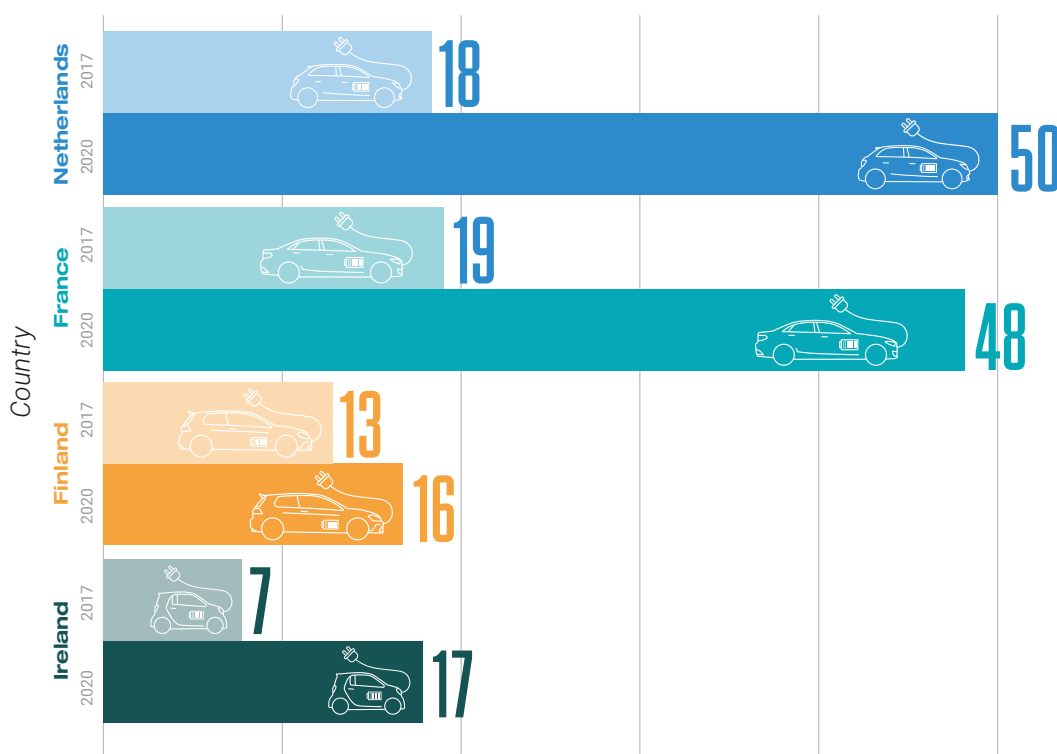
To tackle the impact of strict CO₂ based motor vehicle taxes, since 2017 many OEMs have started to shift away from standard internal combustion engine (ICE) vehicles, in favour of lower emissions electrified vehicles. Not only does this shift reflect a change in mindset and preference from consumers across Europe, but also a clear effort to meet emissions targets laid out by the European Commission.

The rapid growth and demand for electric vehicles (EVs) in Europe has been relatively consistent across the continent, with EV registrations more than doubling in Europe last year. This has been reflected in the availability of EV models across Europe, with the Netherlands, France, Finland

and Ireland, all seeing an uptick in the number of EVs listed.

The Netherlands – which as we have already seen, have some of the strictest CO₂ policies in place – has the greatest number of EVs available for purchase, rising from 18 models to 50 models in the space of four years. This effort is closely followed by France, with an increase of 29 models during this period. Great attempts have also been made by Finland, which more than doubled their electrified offering from just 13 models in 2017 to 29 last year. Similarly, Ireland has more than tripled their range, rising from 7 to 24 models in 2020.

Rise in number of EVs from 2017 to 2020



New EV models available for purchase

The transition from NEDC to WLTP, alongside global efforts to create a greener planet, has had a real impact on the automotive industry and the way manufacturers operate.

Where options were once key money-makers for OEMs, manufacturers can no longer rely on these options to generate cash for fear of exceeding CO₂ quotas, and the waste of resources that comes from calculating every vehicles' unique WLTP value.

As options impact a vehicle's weight, drag and rolling resistance, WLTP values and overall cost of ownership, the shift away from these additional features and the evolution towards EVs will likely continue. We cannot say what manufacturers' product listings will look like in 10 years' time, but one thing is for certain – real-time WLTP data will be critical to the success of any automotive business for many years to come.

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