



VEHICLE TAXATION IN EU MEMBER STATES

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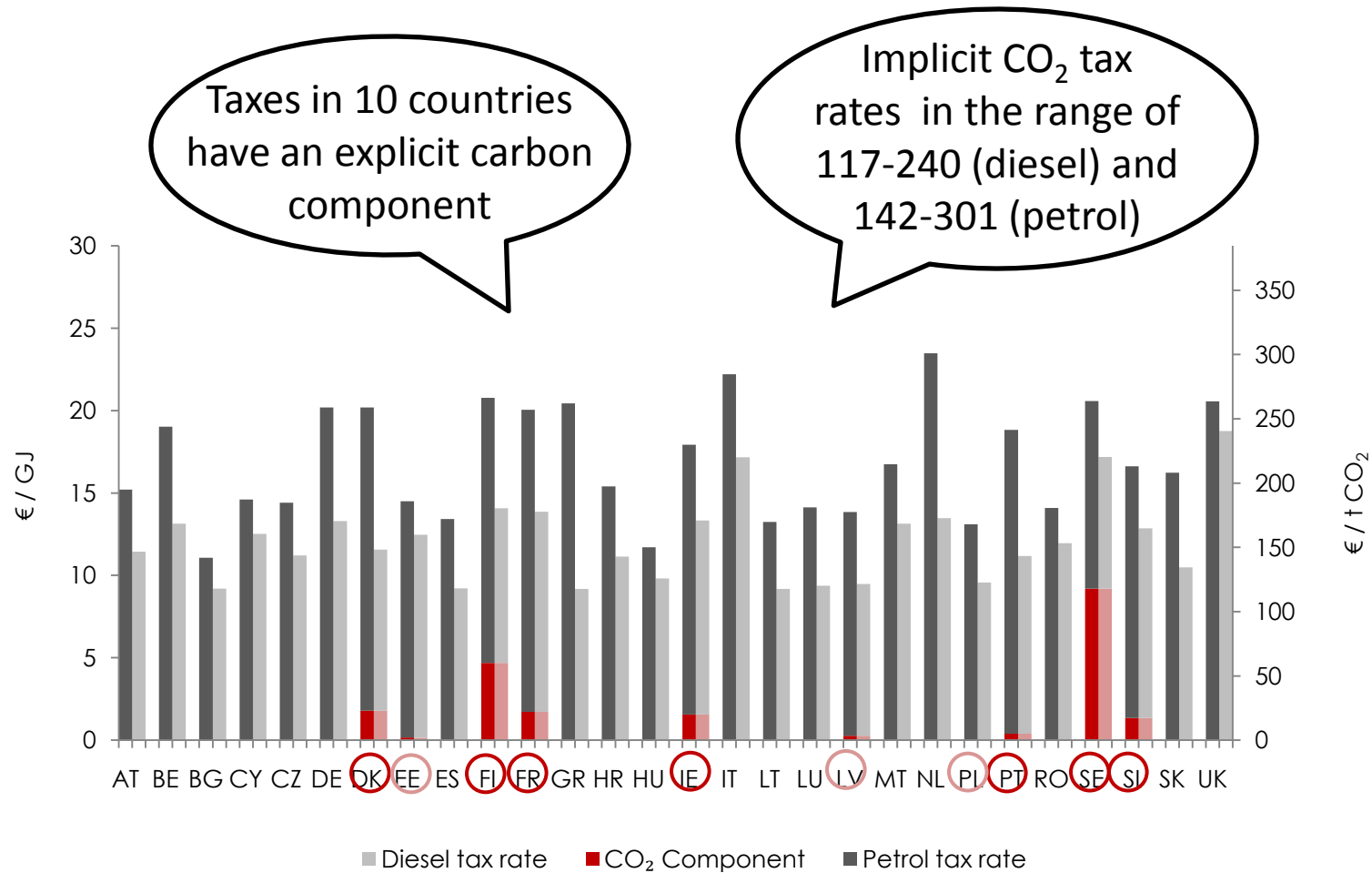
Claudia Kettner

- Background information
- Tax base components for vehicle acquisition and ownership taxes in the EU MS
 - Focus on conventional drives (petrol and diesel driven cars)
- Acquisition and ownership tax rates in the EU MS
- Implicit CO₂ tax rates for vehicle acquisition and ownership in the EU MS

- According to economic theory, taxes directly based on carbon emissions are the first best solution
- In practice, non-recurring and recurring taxes can contribute to GHG reductions
 - *Consumers' myopia* – only usage costs up to 5 years after purchase considered, but effective use periods significantly longer
 - Upfront taxes can counterbalance shortsighted decisions

Petrol and Diesel Taxes in EU MS

2016



Source: EC Excise Duty Tables January 2016

Vehicle Tax Base Components

2016

	Tax Base Components - Acquisition				Tax Base Components - Ownership				
	CO ₂ Emissions	Purchase Price	Cylinder Capacity	Other ¹	CO ₂ Emissions	Cylinder Capacity	Power	Fuel Type / Consump.	Weight
AT	x	x					x		
BE	x		x	x		x		x	
BG						x			
CY	x				x				
CZ									
DE					x	x		x	
DK		x		x				x	x
EE									
ES	x	x					x		
FI	x	x			x				x
FR	x				x				
GR		x			x	x			
HR	x	x			x				
HU			x	x					
IE	x	x			x				
IT				x	x		x		
LT									
LU					x	x		x	
LV	x					x	x		x
MT	x	x		x	x	x			
NL	x				x			x	x
PL		x	x						
PT	x		x		x	x			
RO	x		x			x			
SE					x			x	x
SI	x	x				x			
SK				x					
UK					x	x			

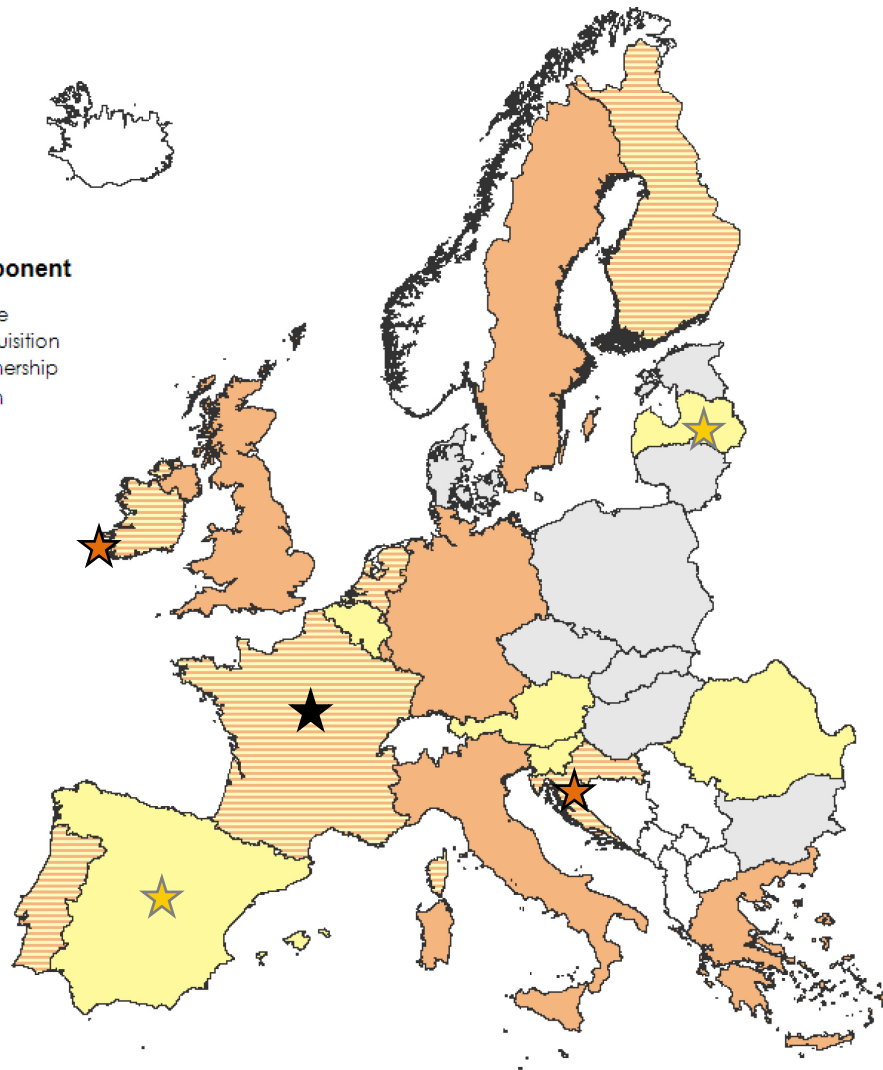
* Power (IT, SK), Fuel Type (BE, HU) or Length (MT), Efficiency (DK)

Source: Kettner & Kletzan-Slamanig (2017).

- ★ CO₂ component as only criterion for both taxes
- ★ CO₂ component as only criterion for purchase taxes
- ★ CO₂ component as only criterion for ownership taxes

CO₂ Component

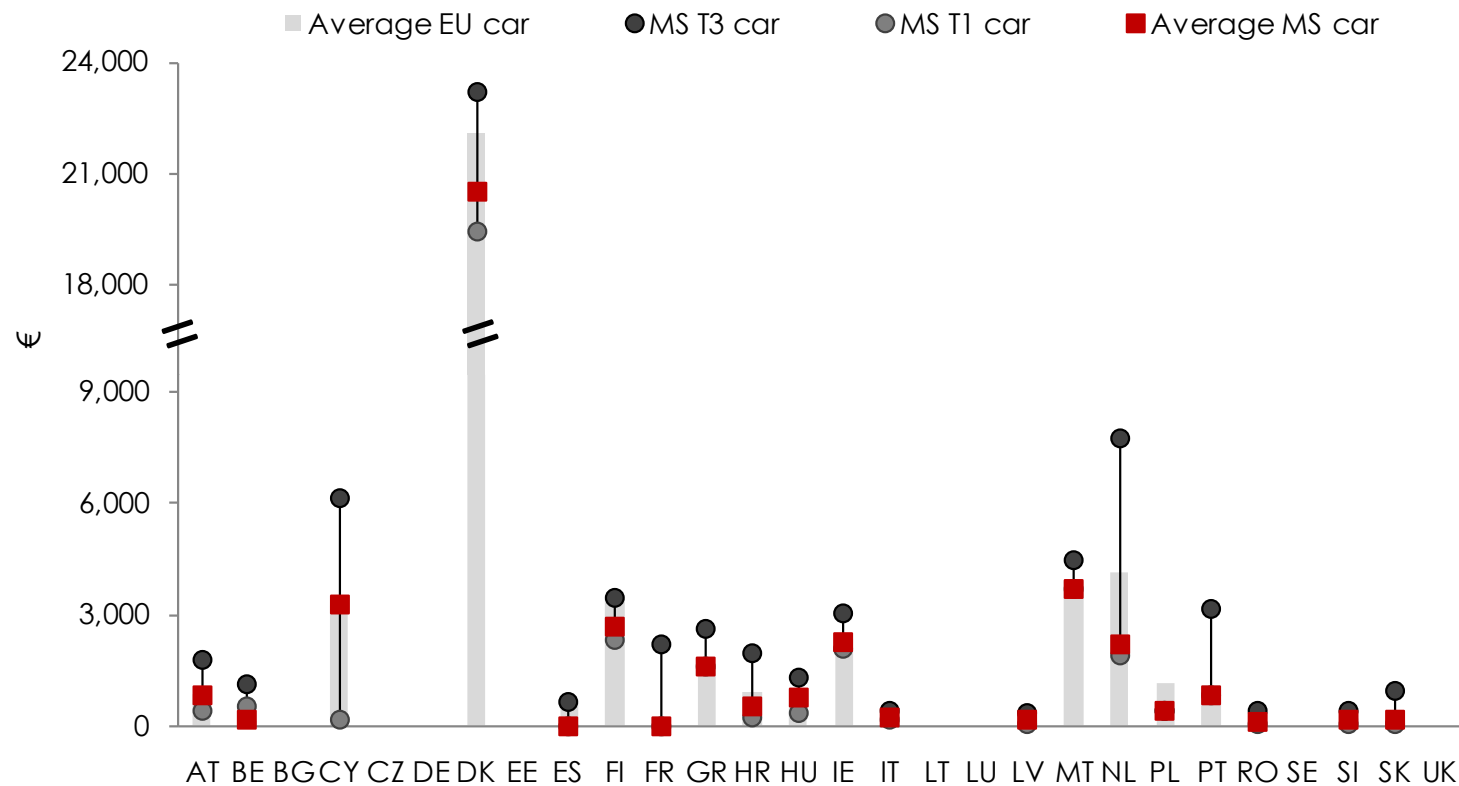
- None
- Acquisition
- Ownership
- Both



- **Acquisition and ownership tax rates are calculated by MS differentiating between**
 - petrol and diesel driven cars
 - 3 categories of cars
 - average newly registered car
 - average car from the 1st tertile in terms of specific CO₂ emissions
 - average car from the 3rd tertile in terms of specific CO₂ emissions
- **Database**
 - Specific CO₂ emissions, mass, power, capacity on MS level: EEA Vehicle Acquisition Statistics
 - Prices:
Prices of an average Austrian petrol/diesel driven car (22,589 € diesel, 13.176 € petrol) are assumed; sensitivity analysis (+/-30%) is performed

Vehicle Purchase Taxes

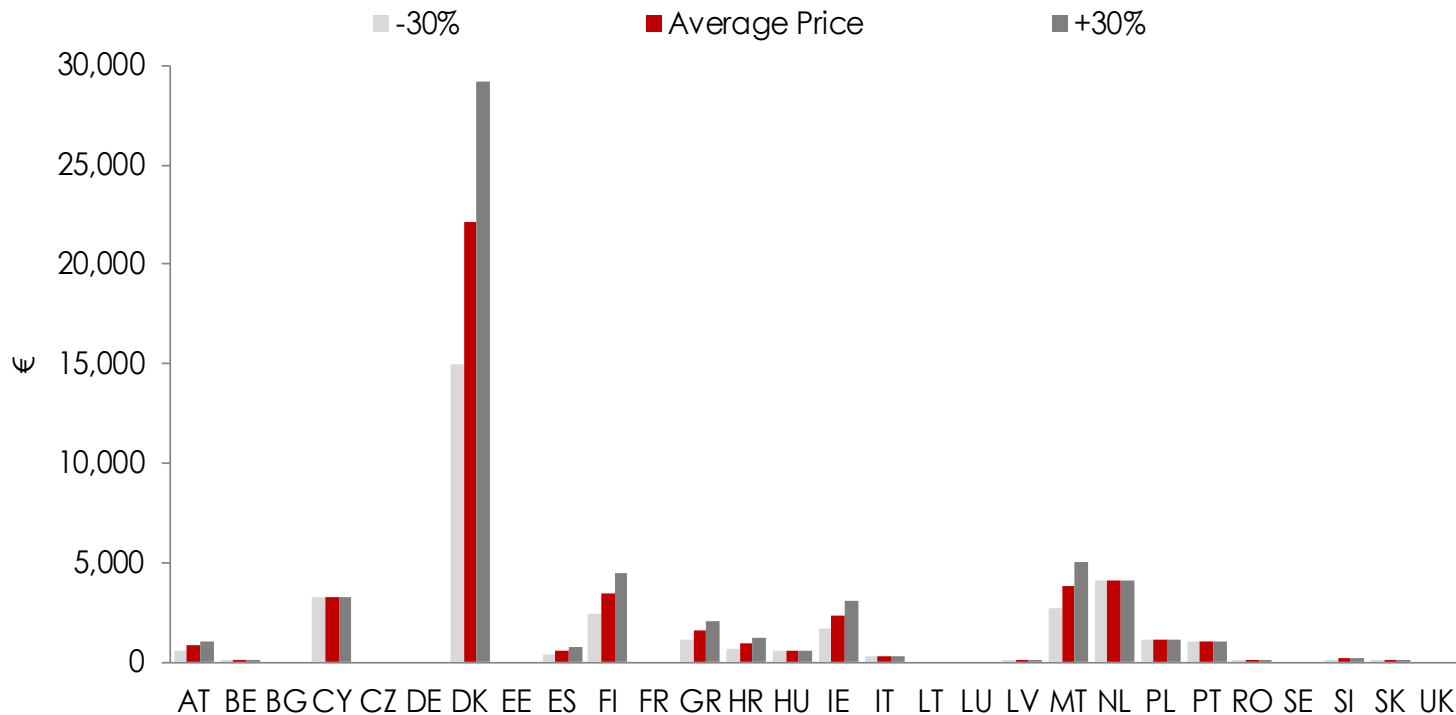
Petrol driven cars 2016



Source: EEA and ACEA Tax Guide 2016

Price sensitivity of purchase taxes

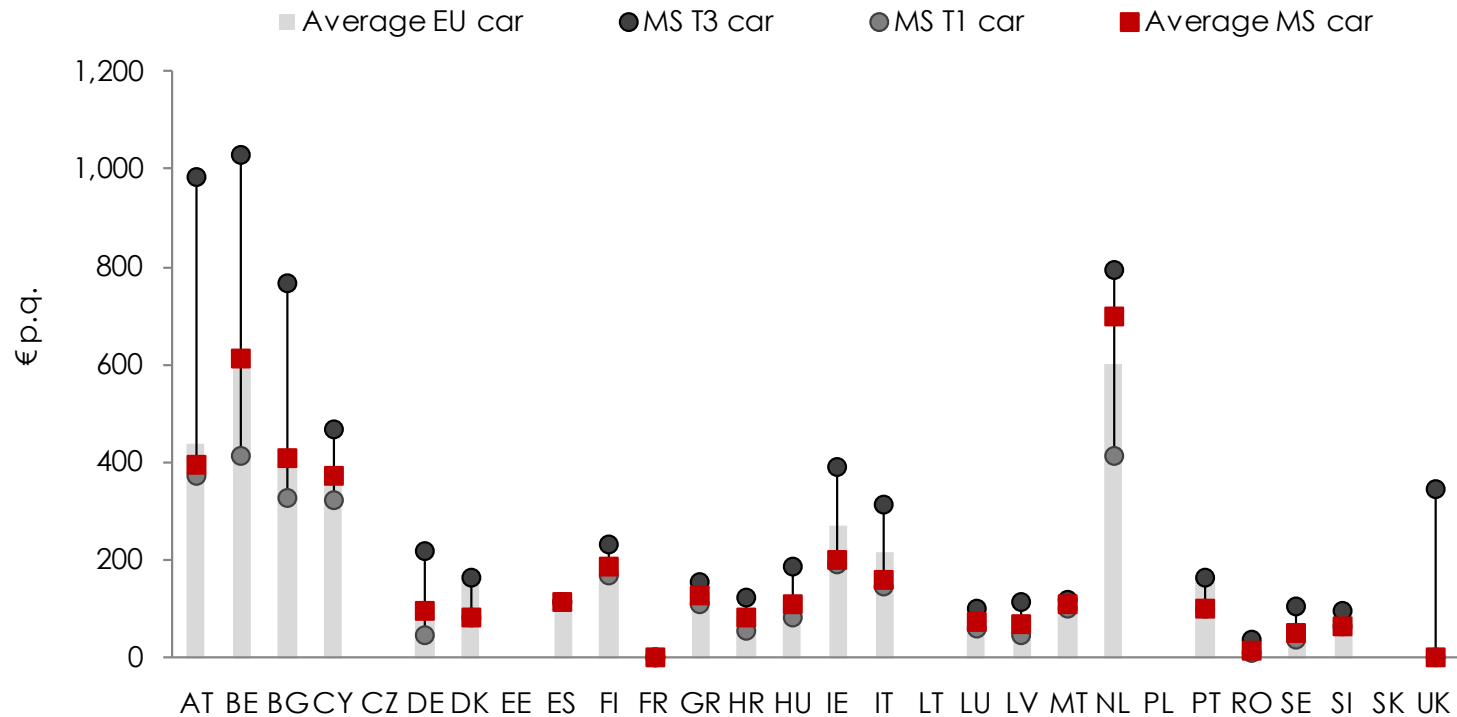
Petrol driven cars 2016



Source: EEA and ACEA Tax Guide 2016

Annual Vehicle Ownership Taxes

Petrol driven cars 2016

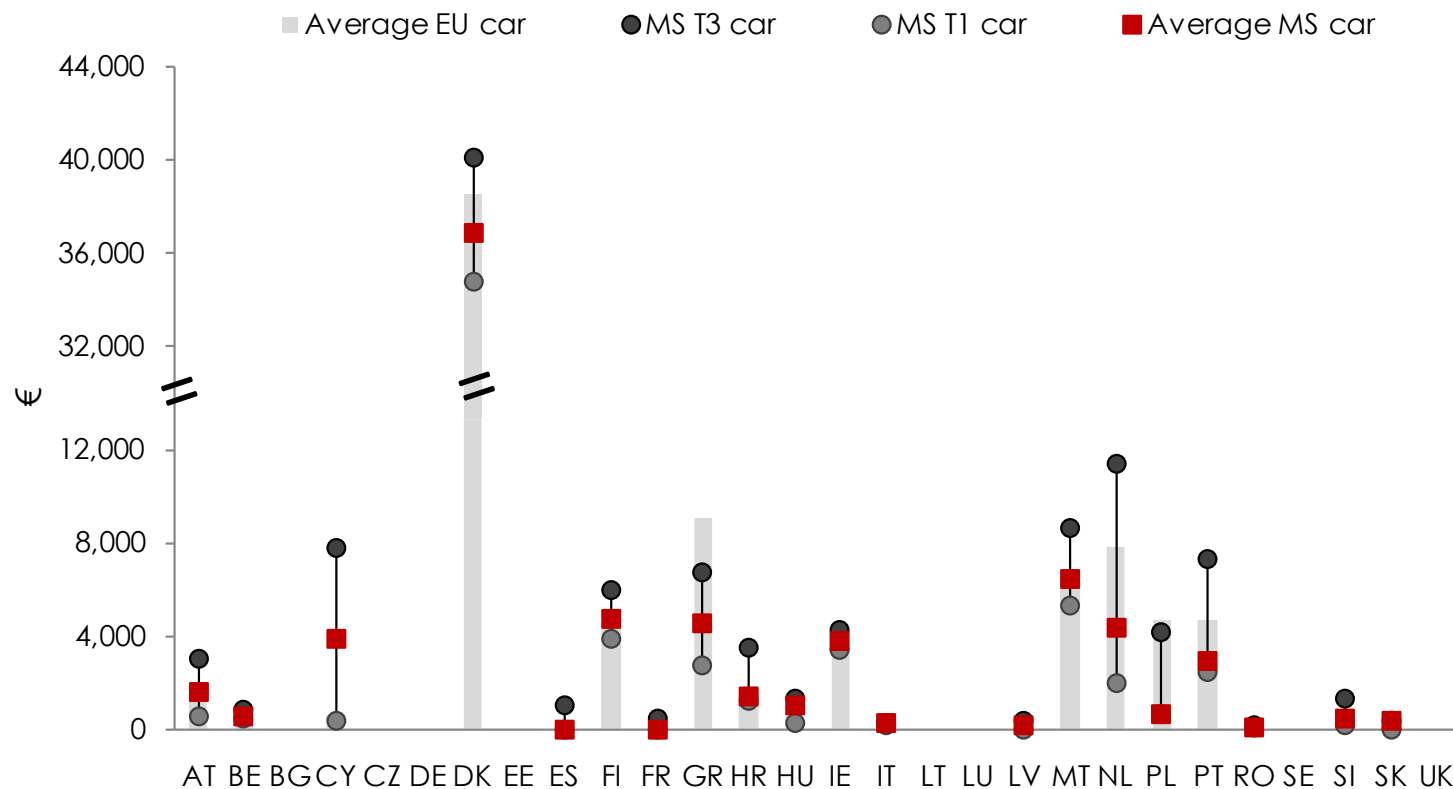


Source: EEA and ACEA Tax Guide 2016

FR: no ownership taxes for cars with the assumed characteristics;
CZ, EE, LT, PL, SK (privately used cars): no ownership taxes

Vehicle Purchase Taxes

Diesel driven cars 2016

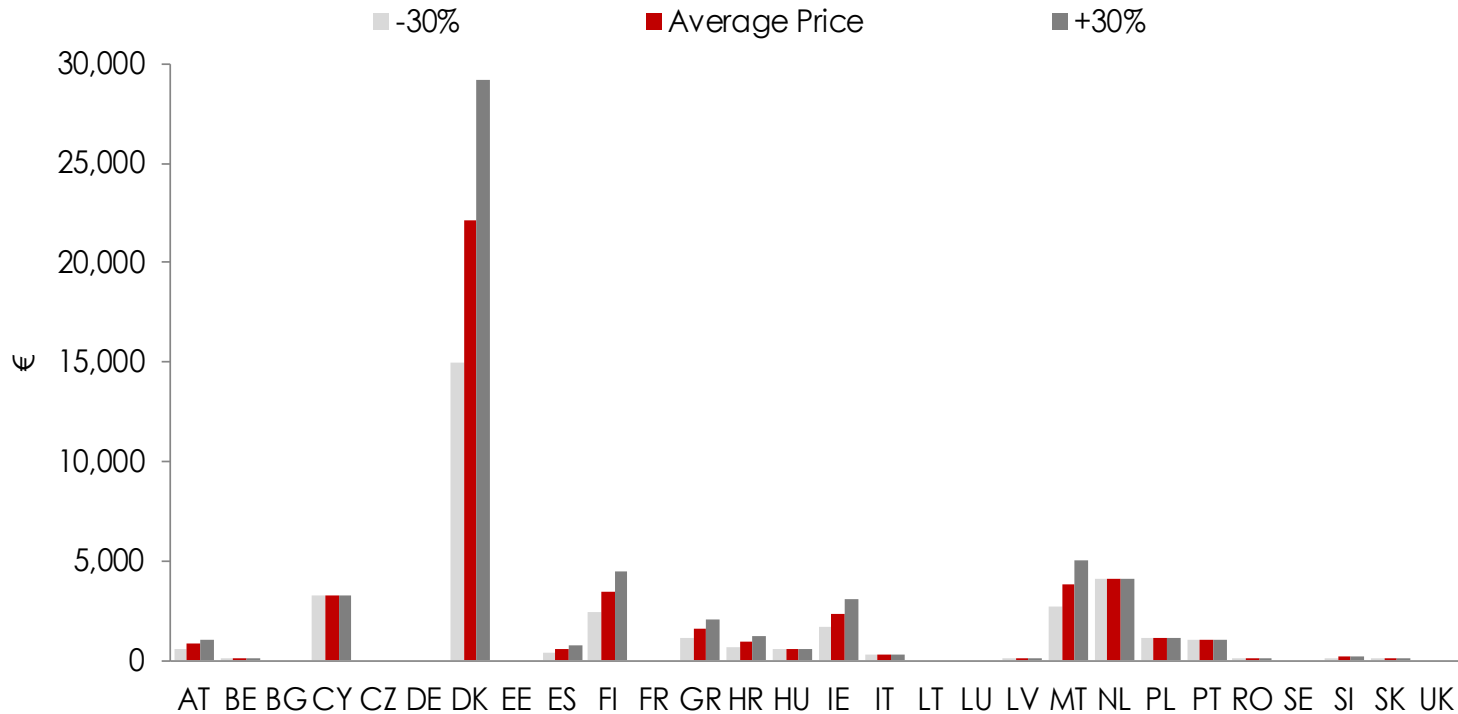


Source: EEA and ACEA Tax Guide 2016

Price sensitivity of purchase taxes

Diesel driven cars 2016

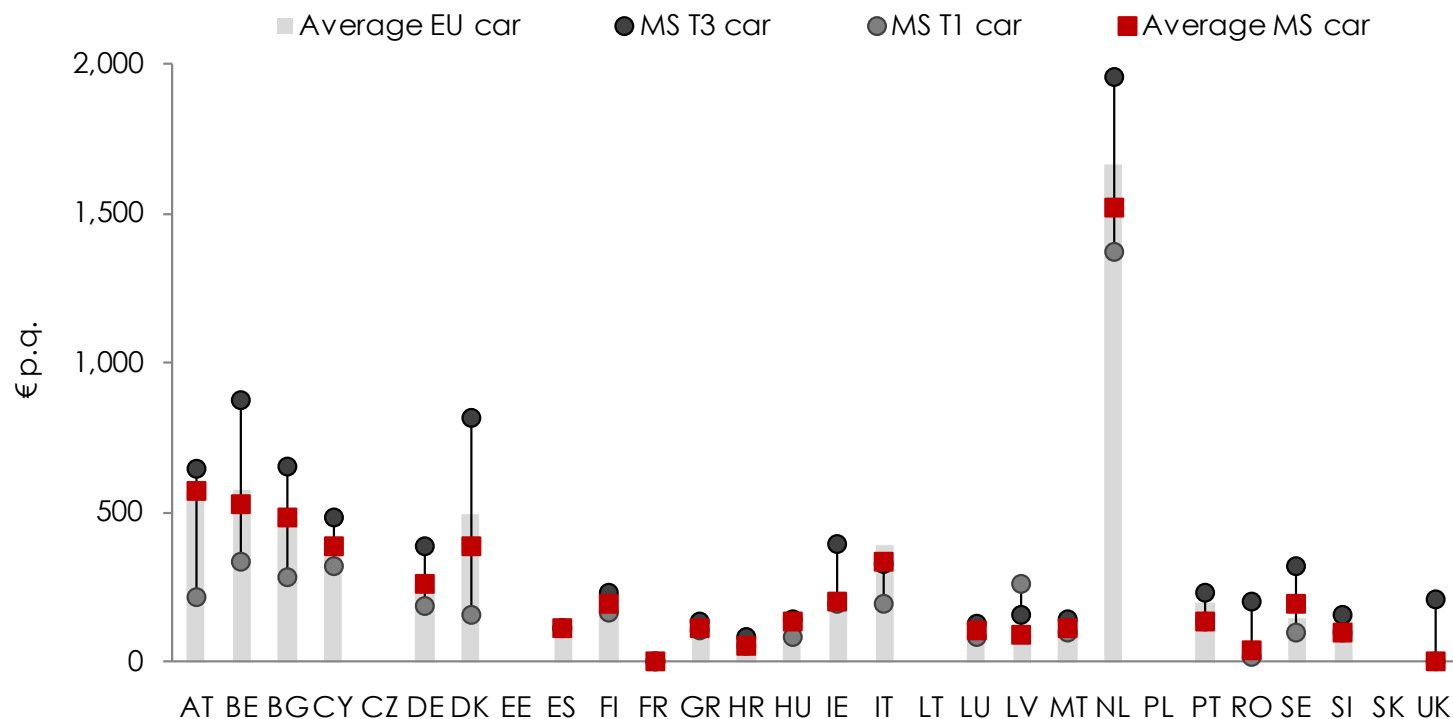
FR: no purchase taxes for cars with the assumed characteristics;
BG, CZ, DE, EE, LT, LU, SE, UK : no purchase taxes (except VAT)



Source: EEA and ACEA Tax Guide 2016

Annual Vehicle Ownership Taxes

Diesel driven cars 2016



Source: EEA and ACEA Tax Guide 2016

FR: no ownership taxes for cars with the assumed characteristics;
CZ, EE, LT, PL, SK (privately used cars): no ownership taxes

- **Methodology**

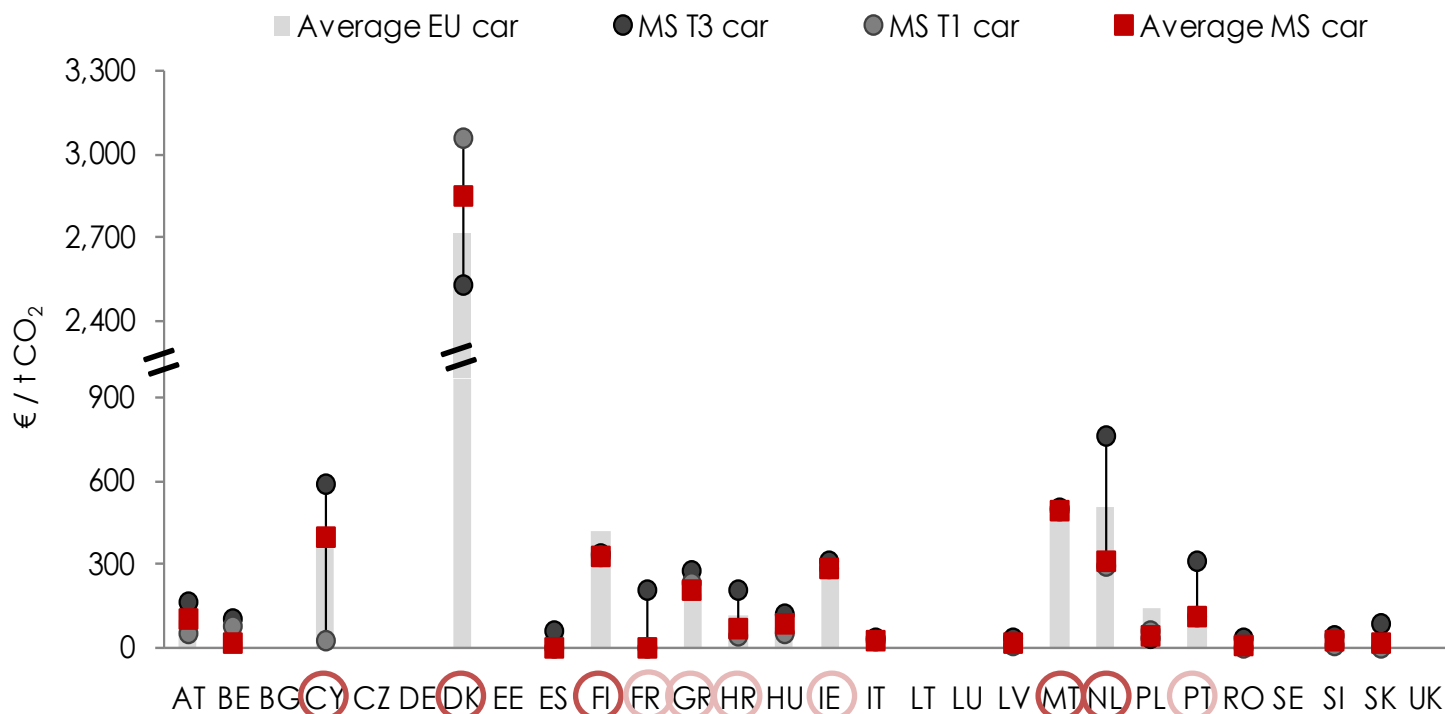
- Purchase Taxes: Non-recurring tax rates are divided by the assumed CO₂ emissions over the whole service life of the cars
- Ownership Taxes: Recurring tax rates are divided by the assumed annual CO₂ emissions of the cars

- **Assumptions for the calculations of CO₂ emissions**

- Specific CO₂ emissions (g/km): 104-183 (petrol)
97-177 (diesel)
- Km travelled p.a.: 9,535 (petrol) and 17,245 (diesel)
- Service life: 7 years

Implicit Purchase Carbon Taxes

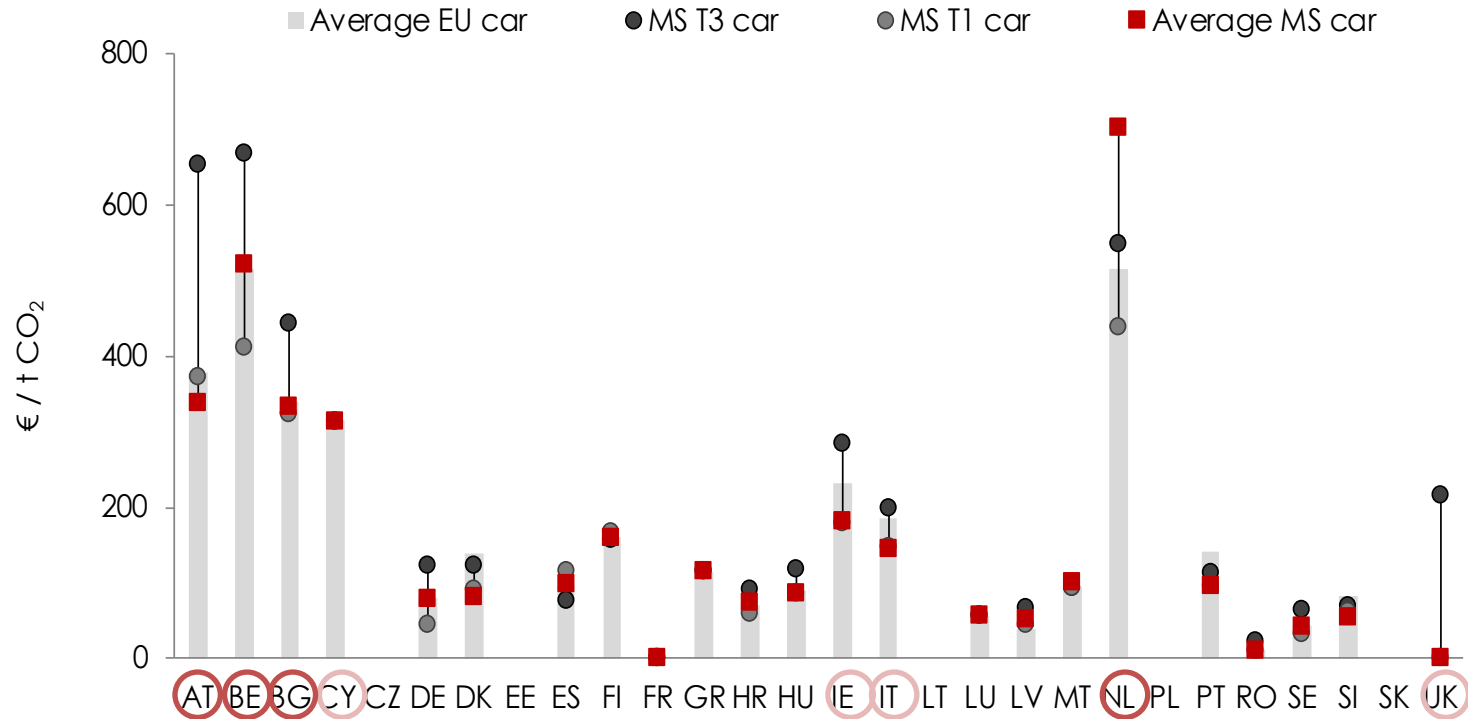
Petrol driven cars 2016



Source: EEA and ACEA Tax Guide 2016

Implicit Ownership Carbon Taxes

Petrol driven cars 2016

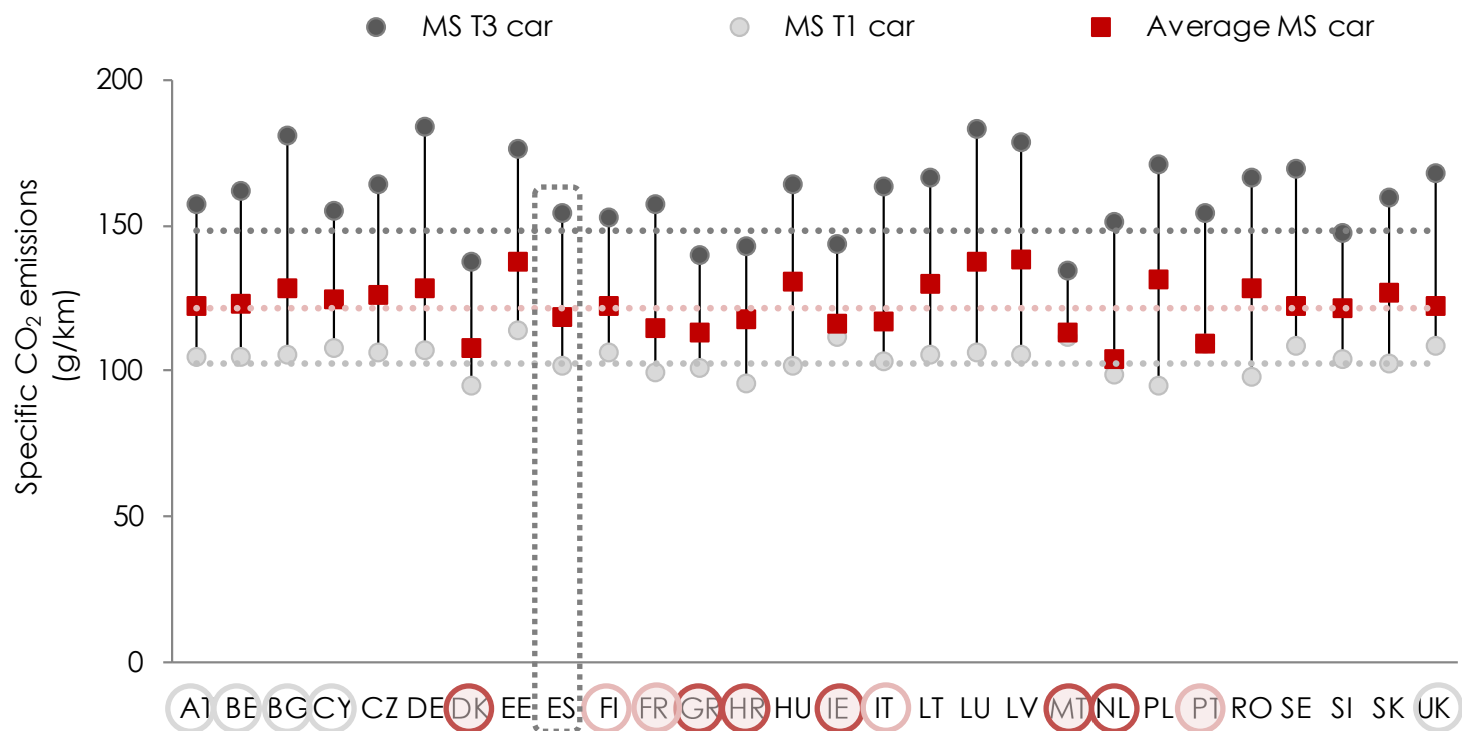


Source: EEA and ACEA Tax Guide 2016

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Specific CO₂ Emissions

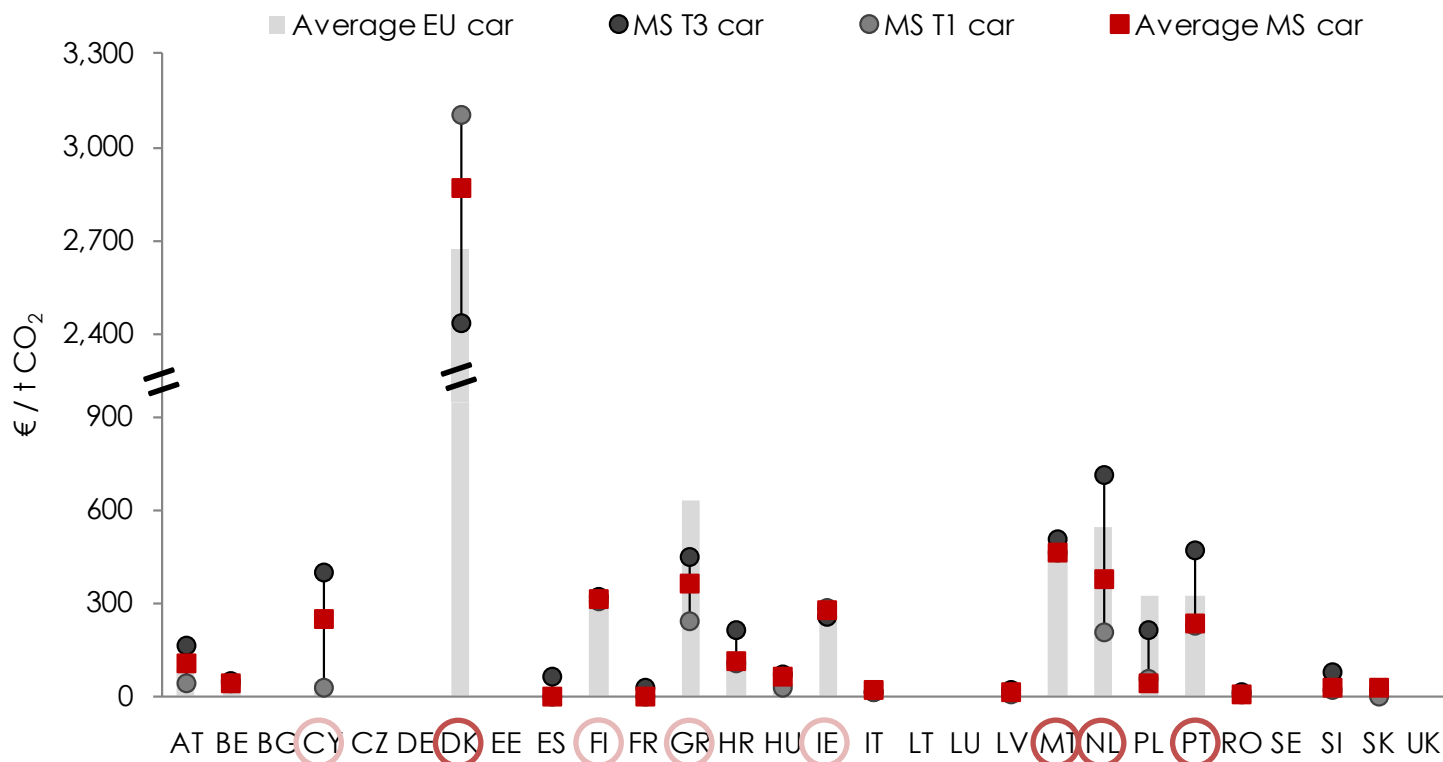
Petrol driven cars 2016



Source: EEA

Implicit Purchase Carbon Taxes

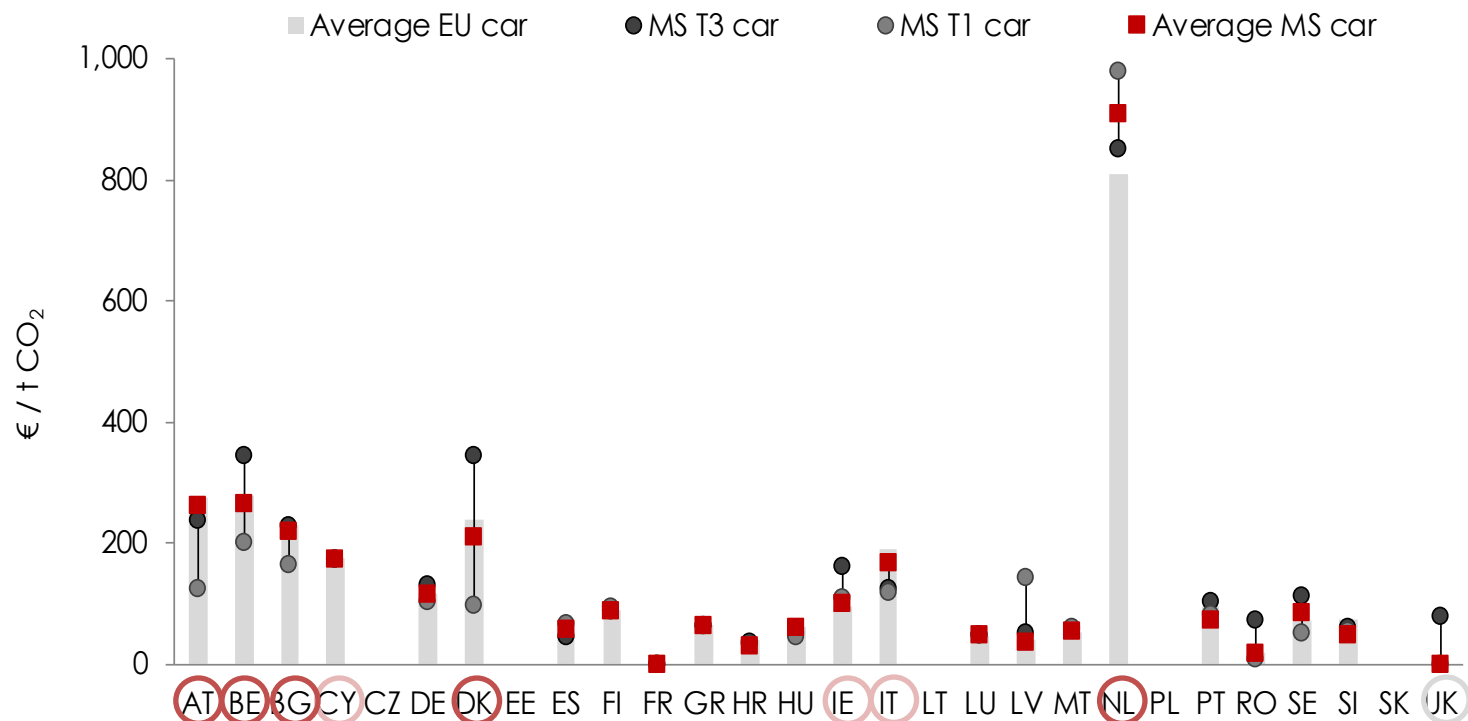
Diesel driven cars 2016



Source: EEA and ACEA Tax Guide 2016

Implicit Ownership Carbon Taxes

Diesel driven cars 2016

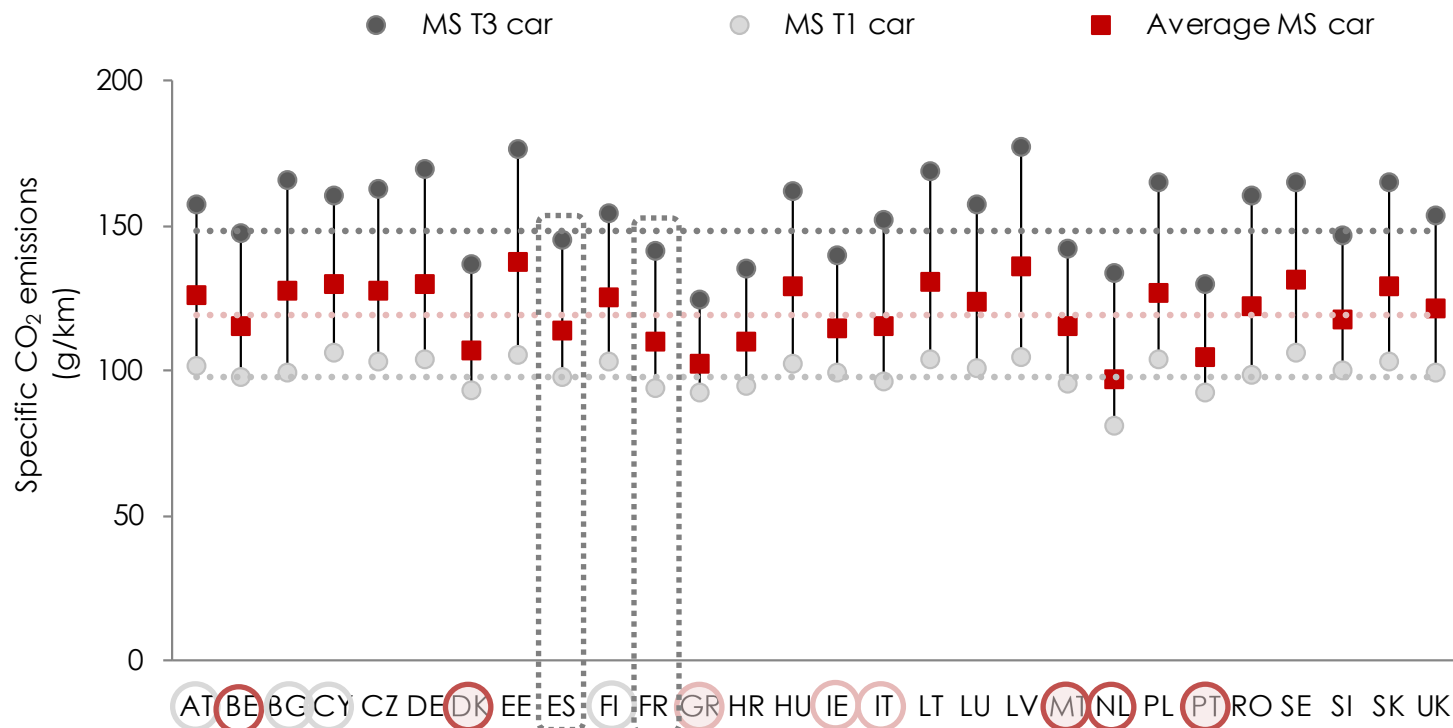


Source: EEA and ACEA Tax Guide 2016

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Specific CO₂ Emissions

Diesel driven cars 2016



Source: EEA

- Taxes directly based on carbon emissions are the first best solution, but
 - Explicit carbon taxes exist only in one third of the MS
 - Implicit carbon prices are not in line with the carbon content of the fuels
- Non-recurring and recurring taxes can contribute to GHG reductions
- Specific CO₂ emissions are considered in vehicle taxation in 20 MS
- Tax levels and spreads differ pronouncedly between MS
- Cars' specific CO₂ emissions tend to be lower in MS with higher ownership and especially purchase taxes
 - But: High tax levels do not guarantee for a shift towards low emission vehicles
 - For the design of vehicle taxes a broad set of criteria should be used in order to avoid unintended detrimental effects

Thank you!

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Further information available at:

<http://cats.wifo.ac.at/>