



Critique of the Regulatory Limitations of Exhaust CO₂ Emissions from Passenger Cars in European Union

C. Bampatsou¹ - E. Zervas^{2,*}

¹Democritus University of Thrace

²Hellenic Open University



Objective of this work-1

The regulation 443/2009 is published last year. The target of this regulation is to control the exhaust CO₂ emissions of new EU passenger cars in 2020.



Objective of this work-2

Three critical points of this regulation is analyzed in this work:

- The average upper limit of CO₂ emissions of each manufacturer
- The derogation of manufacturers with low production
- The penalties for the exceeding CO₂ emissions

An adaptation for the above points is proposed



Contents of this presentation

- Methodology used**
- Critique of the Regulation 443/2009**
 - Average value of CO₂ emissions of each car manufacturer**
 - Derogation of manufacturers with low production**
 - Penalties for the exceeding CO₂ emissions**
- Propositions for the CO₂ regulations in 2020**
- Conclusions**

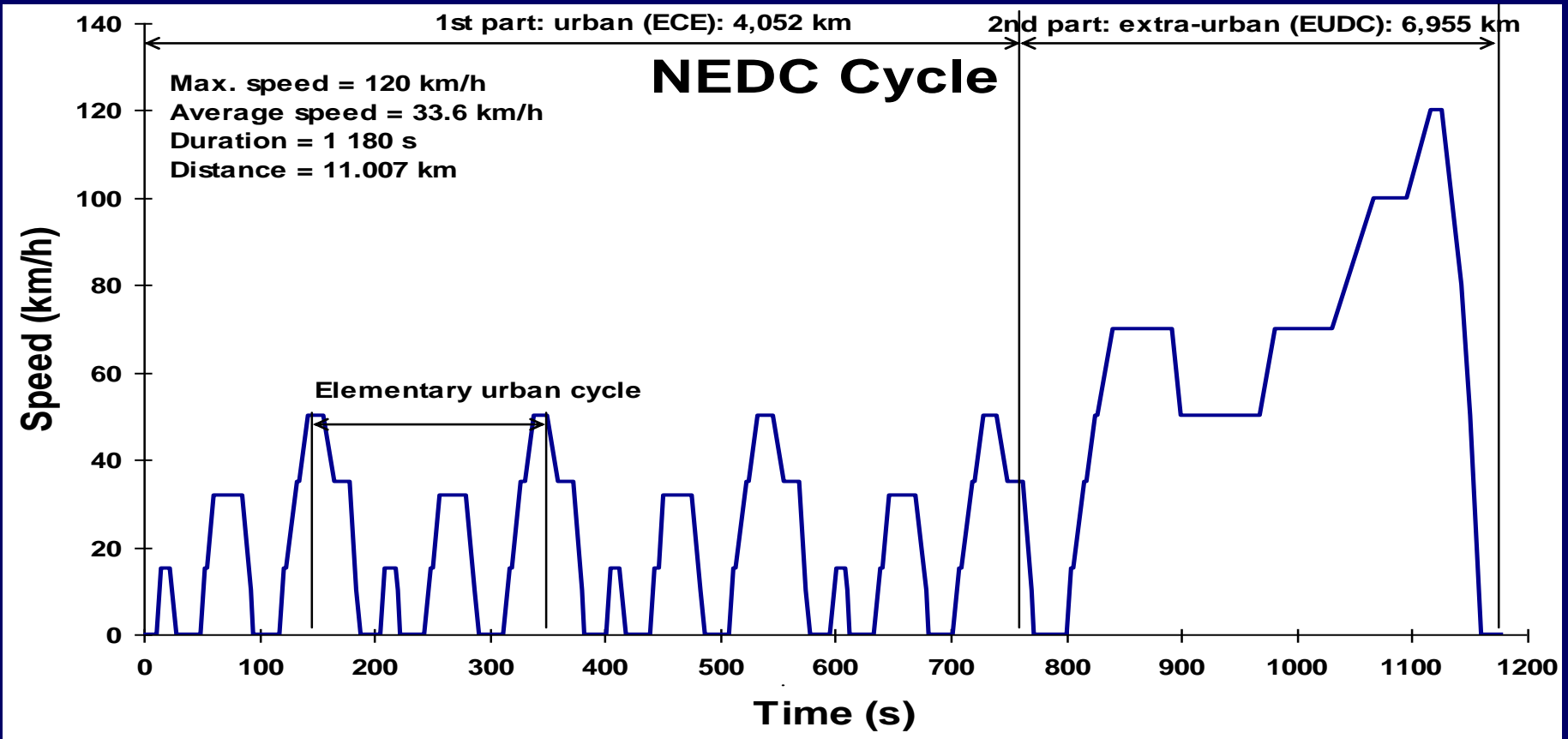


Methodology used - 1

- Exhaust CO₂ emissions of new PCs are measured on the New European Driving Cycle (NEDC)**
- The European PCs fleet is divided into eleven different segments, mainly based on their size**

Methodology used - 2

The New European Driving Cycle





Methodology used – 3 Segments of new PCs

The 11 segments of the EU PC market, their average weight in 2003 and some representative models of each segment during the years 1995-2003

Segments	Gasoline (kg)	Diesel (kg)	Models
Economic	839	900	Citroen Saxo, Peugeot 106, VW Lupo
Small Car	947	1021	Fiat Uno, Ford Fiesta, Peugeot 206, Renault Clio, Seat Ibiza, VW Polo
Lower Medium	1138	1217	Audi A3, Ford Focus, Peugeot 306, Renault Megane, Toyota Corolla, VW Golf
Upper Medium	1340	1396	Audi A4, BMW 320, Ford Mondeo, Peugeot 406, Renault Laguna, VW Passat
Superior	1510	1568	Audi A6, BMW 525, Mercedes Class E, Opel Omega, Peugeot 607, Volvo V70
Compact	1697	1716	Ford Galaxy, Mercedes Class V, Renault Espace, VW Sharan
Prestige	1712	1779	Audi A8, BMW 728, Mercedes Class C
SUV (< 4,5 m)	1345	1631	Ford Maverick, Land Rover Freelander, KIA Sportage
SUV (> 4,5 m)	2004	1970	BMW X5, Jeep Grand Cherokee, Mercedes Class M, VW Touareg
4×4 (< 4,5 m)	1406	1749	Jeep Cherokee, Nissan Partol, Opel Frontera, Suzuki Vitara, Toyota Land Cruiser
4×4 (> 4,5 m)	1982	1969	Hyundai Terracan, Land Rover Discovery



Critique of the Regulation 443/2009

1. Average value of CO₂ emissions of each manufacturer - 1

The regulation 443/2009 proposes a limit on exhaust CO₂ emissions of 95g/km in 2020, based on the average emissions of each manufacturer sales.

- There is no limit on exhaust CO₂ emissions for each passenger car.
- A car manufacturer has the flexibility to sell a number of PCs with CO₂ emissions higher than the limit and compensate the difference
 - in the level of its total sales
 - as a part of a group where the average value of CO₂ emissions is applied in the case of the entire group



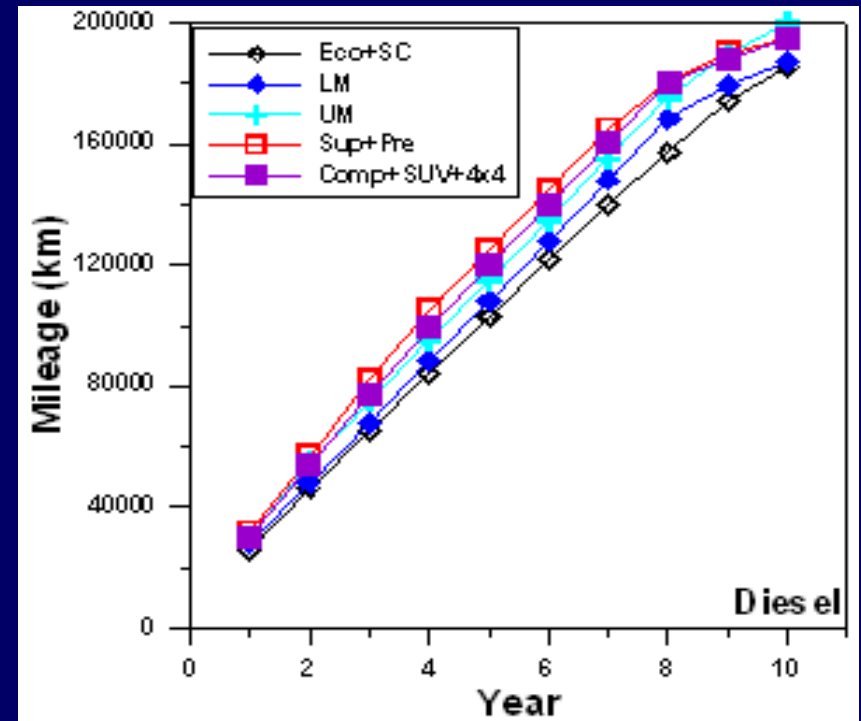
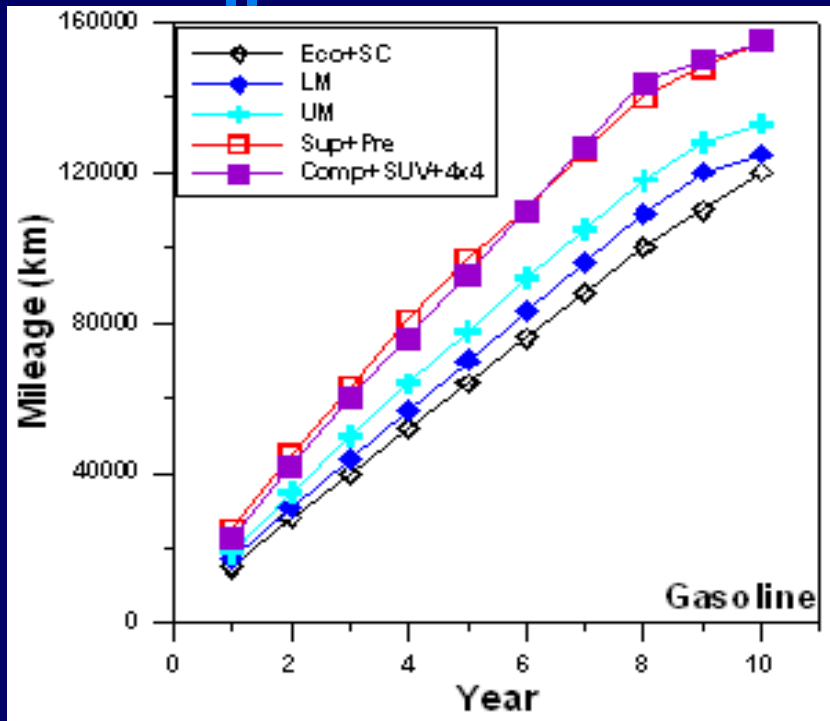
Critique of the Regulation 443/2009

1. Average value of CO₂ emissions of each manufacturer - 2

- ❑ However the EU texts about the other regulated pollutants (CO, HC, NO_x and particulate matter (PM) in the case of diesel PCs) have the SAME limit for all PCs
- ❑ The target of limitations of both types of pollutants is to improve air quality and decrease exhaust pollutants. There is no justification for this different approach
- ❑ Specific CO₂ emissions are estimated on the NEDC for all PCs, but all PCs do not have the same annual travelling distance

Critique of the Regulation 443/2009

1. Average value of CO₂ emissions of each manufacturer - 3



□ There is a significant difference on annual mileage between each segment, especially in the case of gasoline PCs, with bigger cars, and thus higher CO₂ emitters, to run higher mileages than the smaller ones.



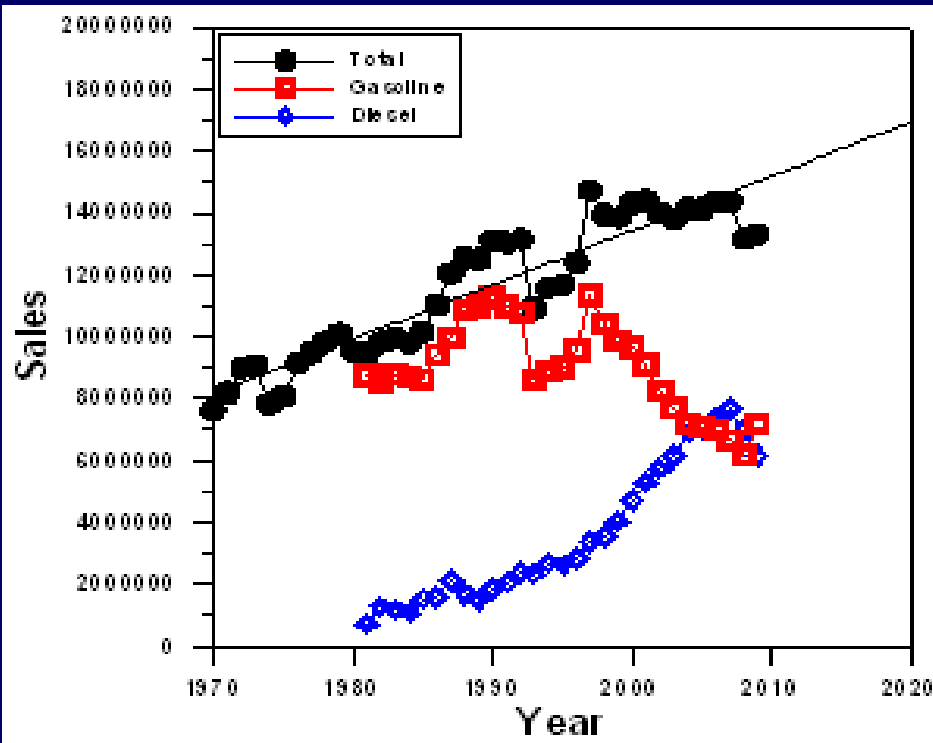
Critique of the Regulation 443/2009

1. Average value of CO₂ emissions of each manufacturer - 4

□ Real CO₂ emissions will be higher in the case of the use of an average CO₂ emissions limit than the same limit for each PC, because higher CO₂ emitters have higher mileages.

Critique of the Regulation 443/2009

1. Average value of CO₂ emissions of each manufacturer - 5

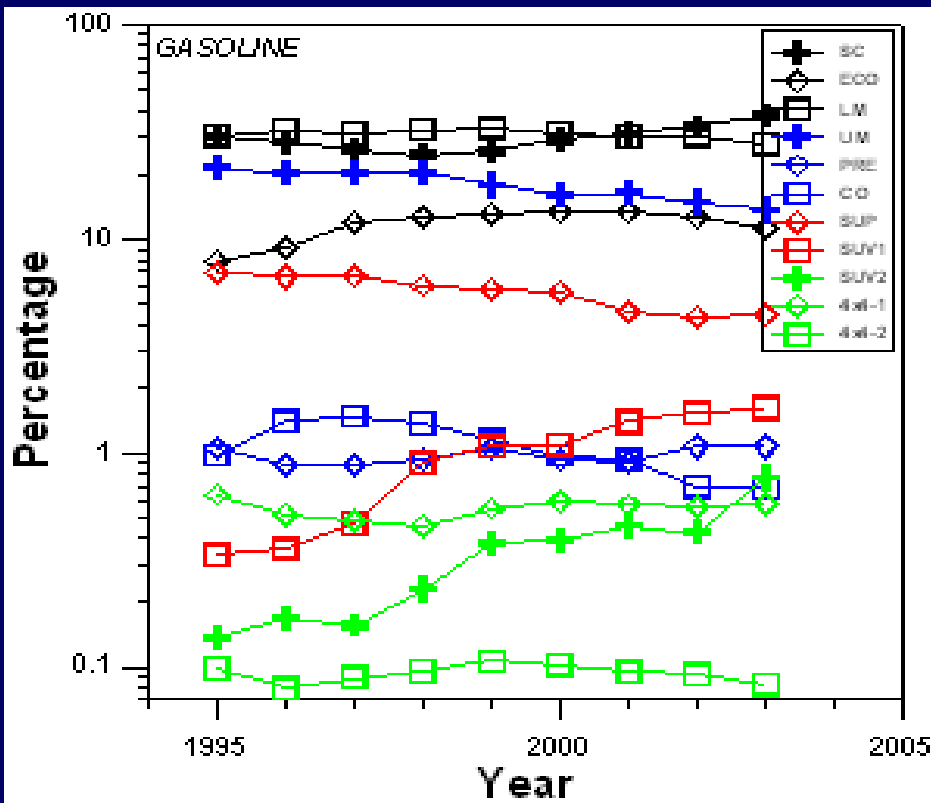


□ This difference will be higher in the case of a bigger PC fleet

□ A significant increase of total new PC occurs in EU since 1970 and this increase will continue in the future

Critique of the Regulation 443/2009

1. Average value of CO₂ emissions of each manufacturer - 6



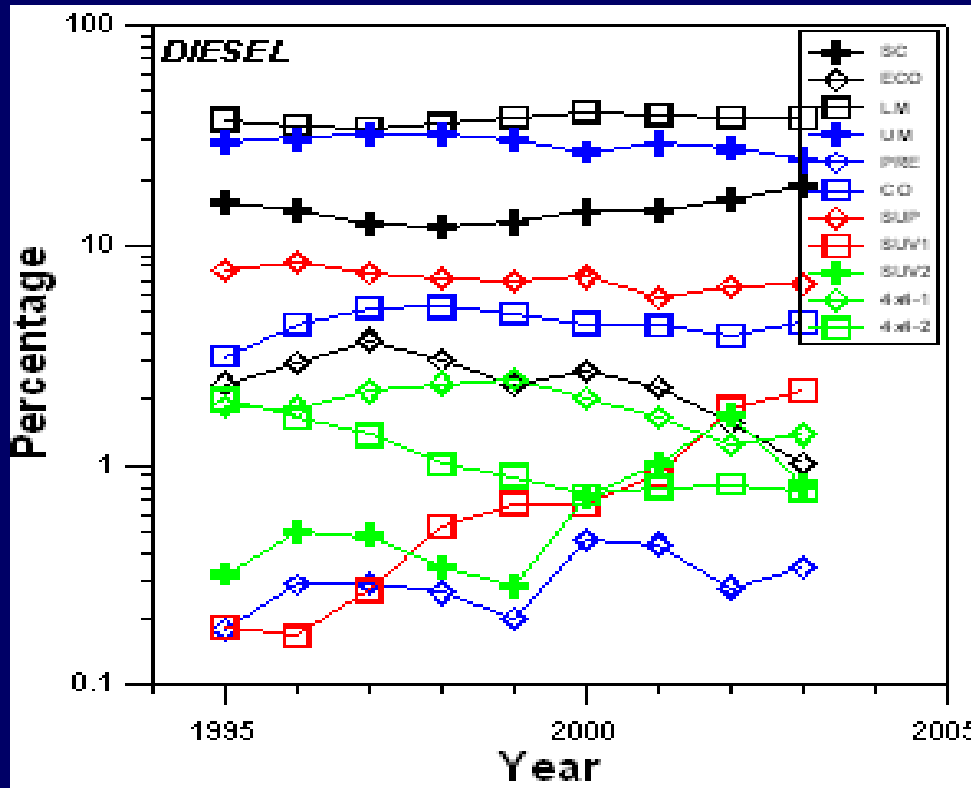
□ There are significant changes in distribution of gasoline segments

□ The percentage of Economic and the two SUV ones show a clear increased tendency

□ The percentage of the two SUV segments increases by more than 5 times from 1995 to 2003.

Critique of the Regulation 443/2009

1. Average value of CO₂ emissions of each manufacturer - 7



- There are significant changes in distribution of diesel segments
- Small Cars, with about 20% in 2003 show a clear increased tendency.
- The percentage of the SUV < 4.5m increased about 12 times from 0.18% in 1995 to 2.18% in 2003.



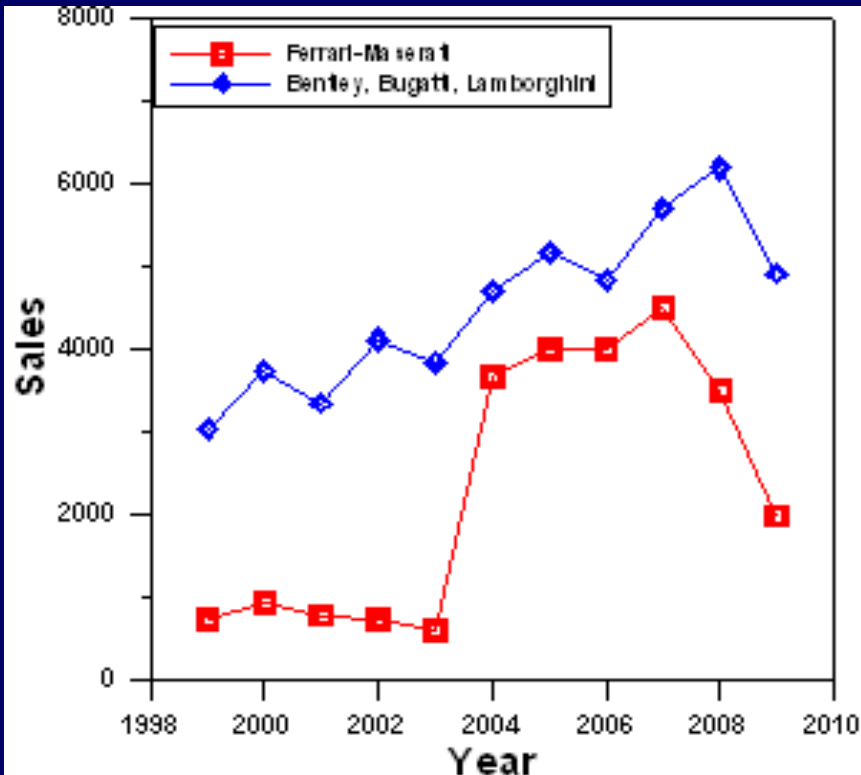
Critique of the Regulation 443/2009

1. Average value of CO₂ emissions of each manufacturer - 8

It is clear that, to achieve the best CO₂ control, all PCs must have the same limit of CO₂ emissions

Critique of the Regulation 443/2009

2. Derogation of manufacturers with low production - 1



□ This derogation is practically addressed to Ferrari and Maserati (of FIAT group) and Bentley, Bugatti and Lamborghini (of VW group)

Critique of the Regulation 443/2009

2. Derogation of Manufacturers with low production - 2

Prices (Greece, 2009) and CO₂ emissions on the NEDC of some characteristic models of low volume car manufacturers

Model	Price (Euros)	CO ₂ (g/km)
Bentley Continental Flying Spur	257,600	396
Bentley Brooklands Coupe	473,000	465
Lamborghini Gallardo LP560	220,000	325
Lamborghini Reventon Roadster	1,100,000	495
Ferrari California	180,000	299
Ferrari 612 Scaglietti	232,100	470



Critique of the Regulation 443/2009

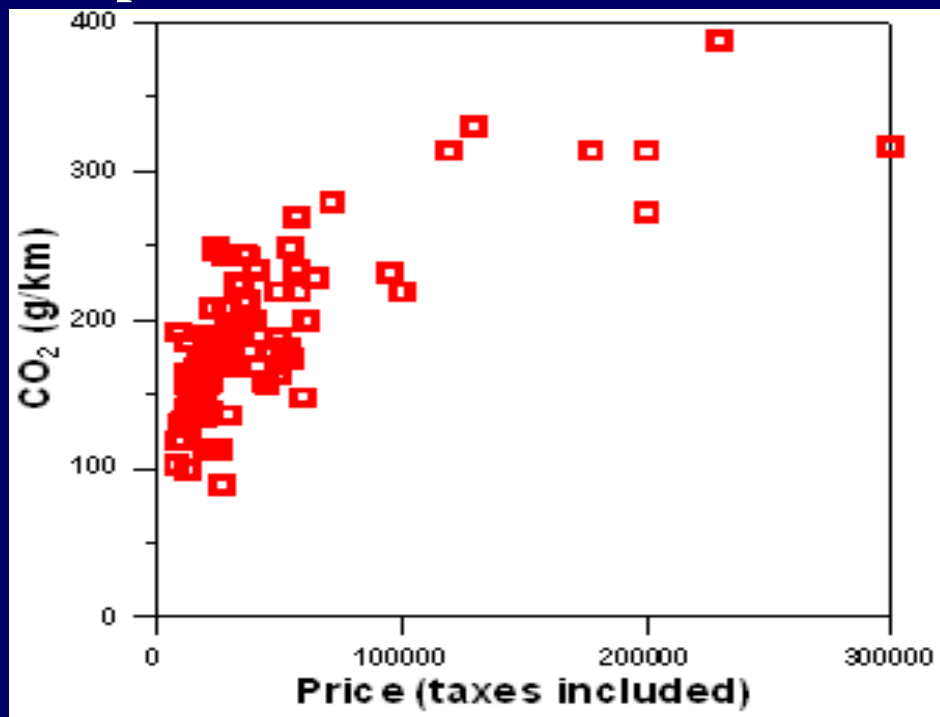
2. Derogation of Manufacturers with low production - 2

- The low volume manufacturers can receive a derogation for some years.
- However, those models are not addressed to the great majority EU citizens, as their prices are extremely high.
- The CO₂ emissions of these models are also extremely high.
- Buying those cars, certain very rich EU citizens have the right to pollute more than the other EU citizens and the principle of equity is violated.

Critique of the Regulation 443/2009

3. Penalties for the exceeding CO₂ emissions - 1

There is a penalty of 95 euro per exceeding gram of CO₂/km per vehicle. This penalty is paid from the car manufacturer, but in practice it will be included in the final price of the vehicle.



□ In the case of cheaper cars this increased price will motivate the buyers to buy cheaper cars and thus lower CO₂ emitters.

□ The penalty proposed can be very affordable for the buyers of vehicles of very expensive cars, as the extra price is a very low part of the total vehicle price.

□ The principle of equity is again violated



Propositions for the CO₂ Regulations

- ❑ The same upper limit of CO₂ emissions for every new PC without derogations and penalties.
 - ❑ Applying the same CO₂ limit, real world CO₂ emissions will decrease more.
 - ❑ The equity of all EU citizens is respected.
 - ❑ Car manufactures will increase their efforts to decrease CO₂ emissions.
- ❑ A passenger car of extra CO₂ emissions must be eliminated during the approval test as is the case of the other regulated exhaust pollutants.



Conclusions - 1

In this work the regulation 443/2009 is analyzed and a critique is dressed to three points of this text.

- The first point concerns the limit on exhaust CO₂ emissions which is based on the average emissions of the sales of each manufacturer.**
 - As cars with higher CO₂ emissions also have a higher mileage, the total CO₂ emissions will decrease less than the case of the same limit of all PCs.**
 - Car industries which manufacture extremely polluting cars are allowed to pool together with others without limiting at all the emissions of their models as long as the total emissions do not exceed its specific emissions target. This fact put into question the principle of equality.**



Conclusions - 2

- ❑ The second point is that the low volume manufacturers can receive a derogation for some years. As those car manufacturers produce very expensive models (and very high CO₂ emitters), the principle of equity is also violated.
- ❑ The third point concerns the penalty of 95 euro per exceeding gram of CO₂/km per vehicle.
 - ❑ As price is not the first argument for the sale of very expensive cars, richer people will have the right to pollute more than the poorest ones.

The maximum decrease of CO₂ emissions and the principle of equity of citizens are the two principles of our propositions for the CO₂ regulations. The approval test must eliminate all new cars with CO₂ emissions higher than that limit. This principle is also used in the case of the other exhaust pollutants



Critique of the Regulatory Limitations of Exhaust CO₂ Emissions from Passenger Cars in European Union

I thank you for your attention