The fast-track transition towards electro-mobility… and its blind spots

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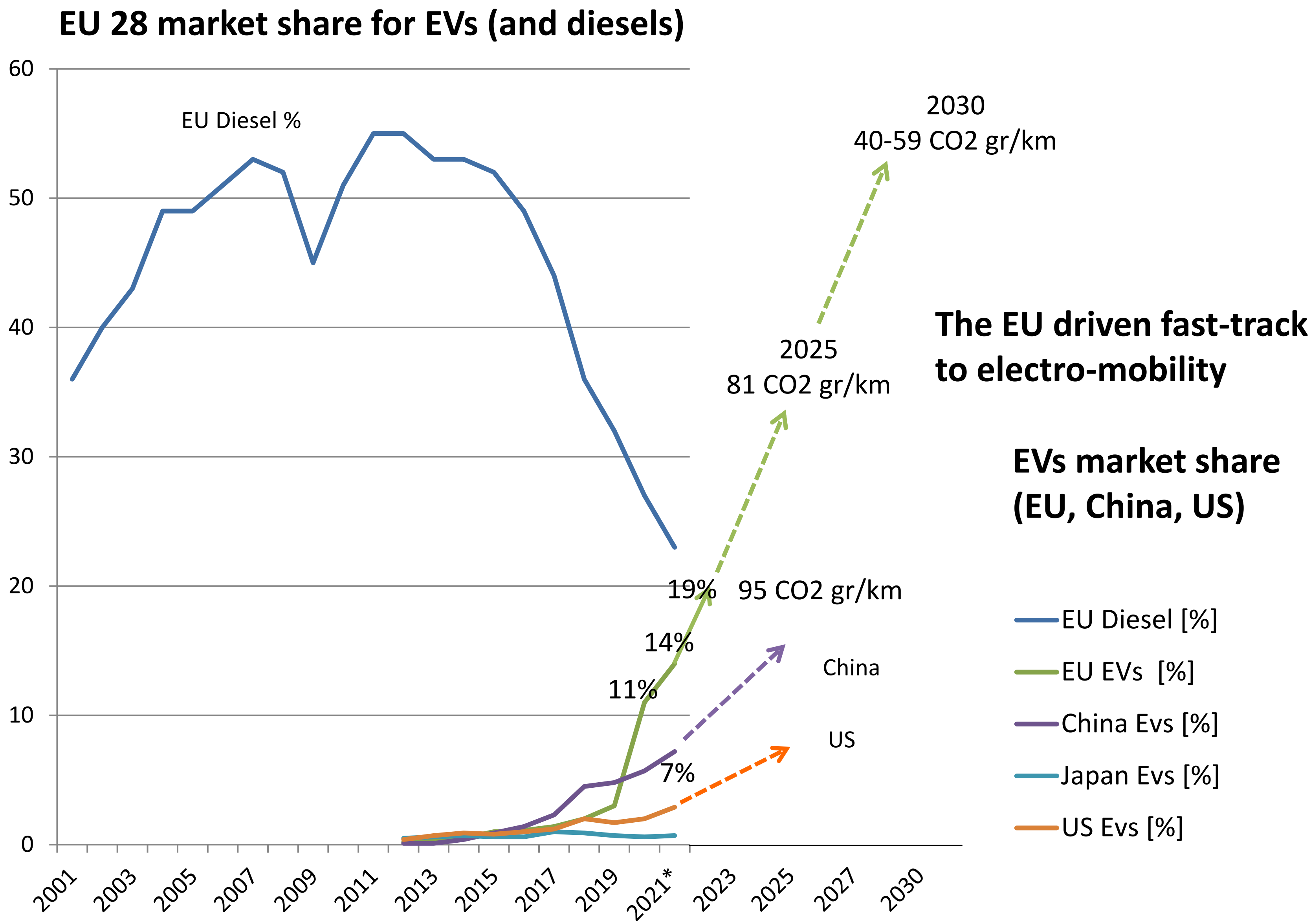


EU 28 market share for EVs (and diesels)
60
50
40
30
20
10
0
EU Diesel %
2030
40-59 CO2 gr/km
2025
81 CO2 gr/km
19%
95 CO2 gr/km
14%
11%
7%
China
US
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021*
2023
2025
2027
2030
The EU driven fast-track to electro-mobility
EVs market share (EU, China, US)
EU Diesel [%]
EU EVs [%]
China Evs [%]
Japan Evs [%]
US Evs [%]

1) The regulatory / technical blind spot

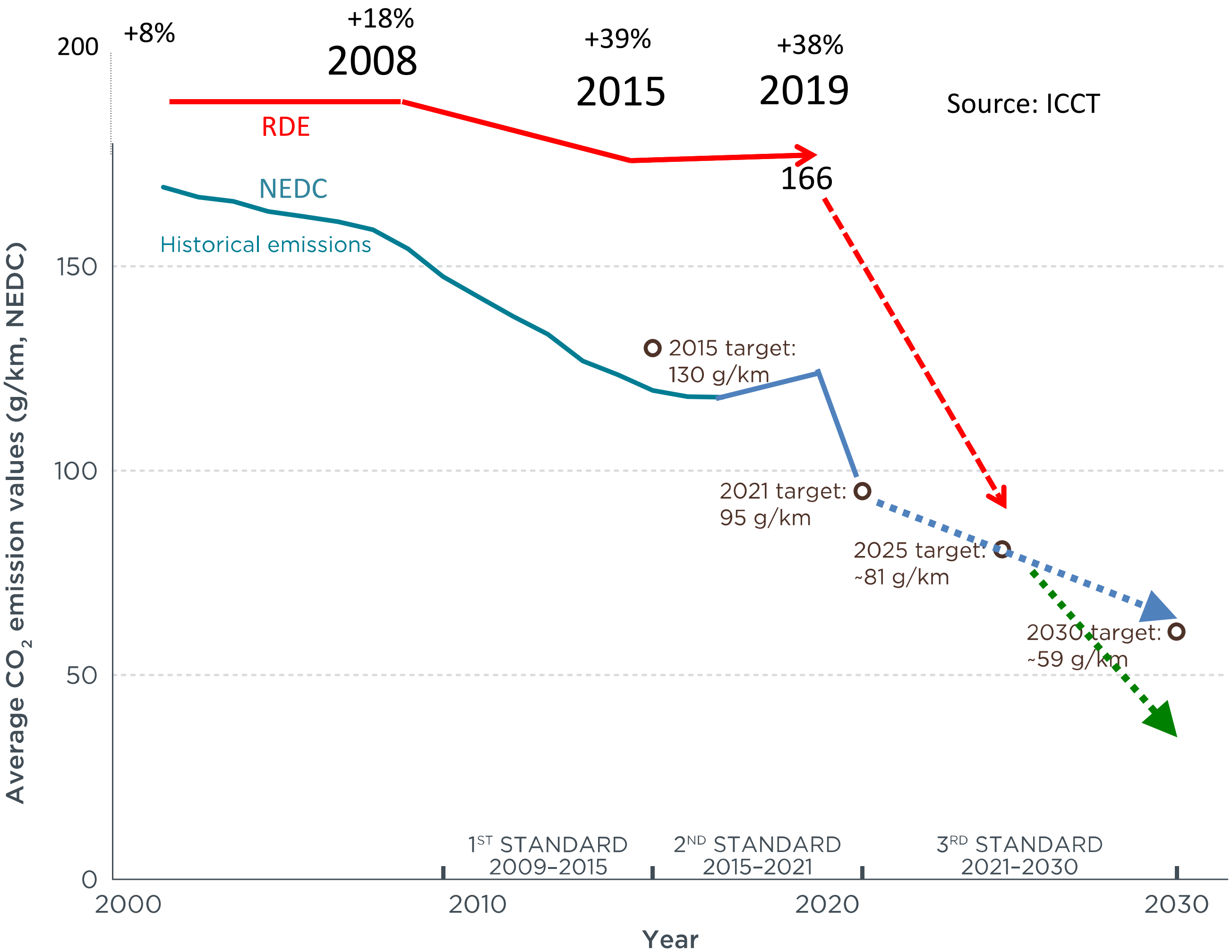


Figure 1. Average historical CO_2 emission values and adopted CO_2 standards for new passenger cars in the EU. All CO_2 values refer to New European Driving Cycle (NEDC) measurements.

The bad seed in
The 1998-2008
CO2 regulation for
cars and vans →

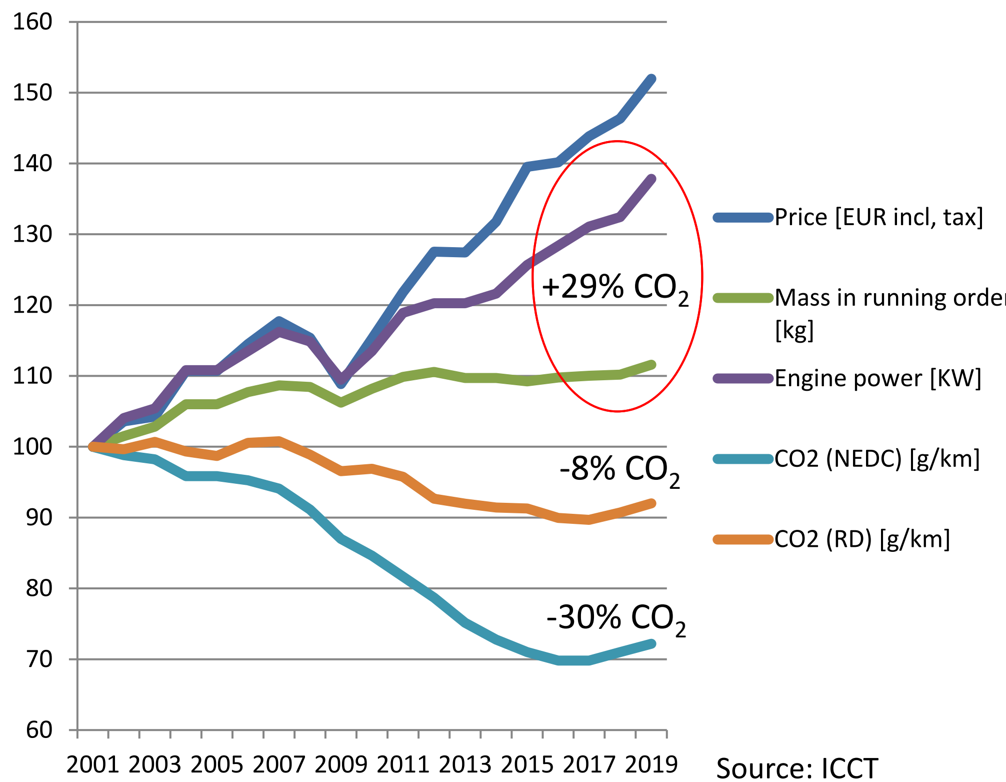
“Danger ahead
Why weight-based CO2 standards will make Europe’s car fleet dirtier and less safe”

“But ironically, defining CO2 standards by vehicle weight would eliminate weight reduction as a method of generating efficiency improvements, as car makers would not be rewarded for making cars lighter. Lighter cars would be 'punished' with a tougher CO2 target. […]

Conclusion: Weight-based CO2 standards eliminate one of the most important paths to CO2 reduction”

(T&E 2007, p. 5).

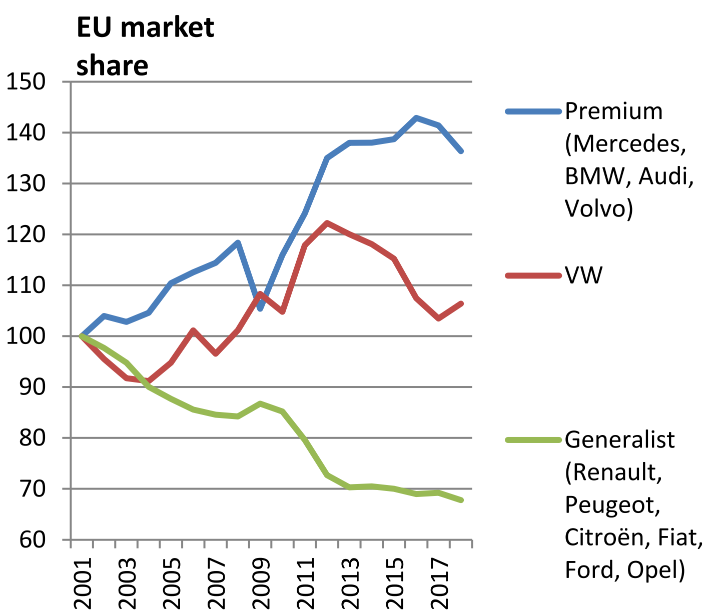
The upmarket drift of the average EU car



Source: ICCT

Extra weight and power have resulted in +29% of CO2 emissions between 2001 and 2018 ICCT 2017a, 2017b, EEA 2018).

	2001	**2018**	**2020 ->**
Av. Premium car (Mercedes, Audi, BMW, Volvo)	1525 kg NEDC 198 CO_2 RDE 214 CO_2	1679 kg (**+154**) NEDC 131 CO_2 (-34%) **RDE 191 CO_2 (-11%)** **+40% Sales**	BEVs +600 kg (90 Kw) PHEVs +450 Kg
Av. Generalist car (PSA, Renault, Opel, Ford, Fiat)	1191 kg NEDC 159 CO_2 RDE 171 CO_2	1291 kg (**+100**) NEDC 115 CO_2 (-27,6%) **RDE 157 CO_2 (-8%)** **-30% Sales**	BEVs +300kg (41-61 Kw) PHEV +250 Kg Source: EEA



In China:

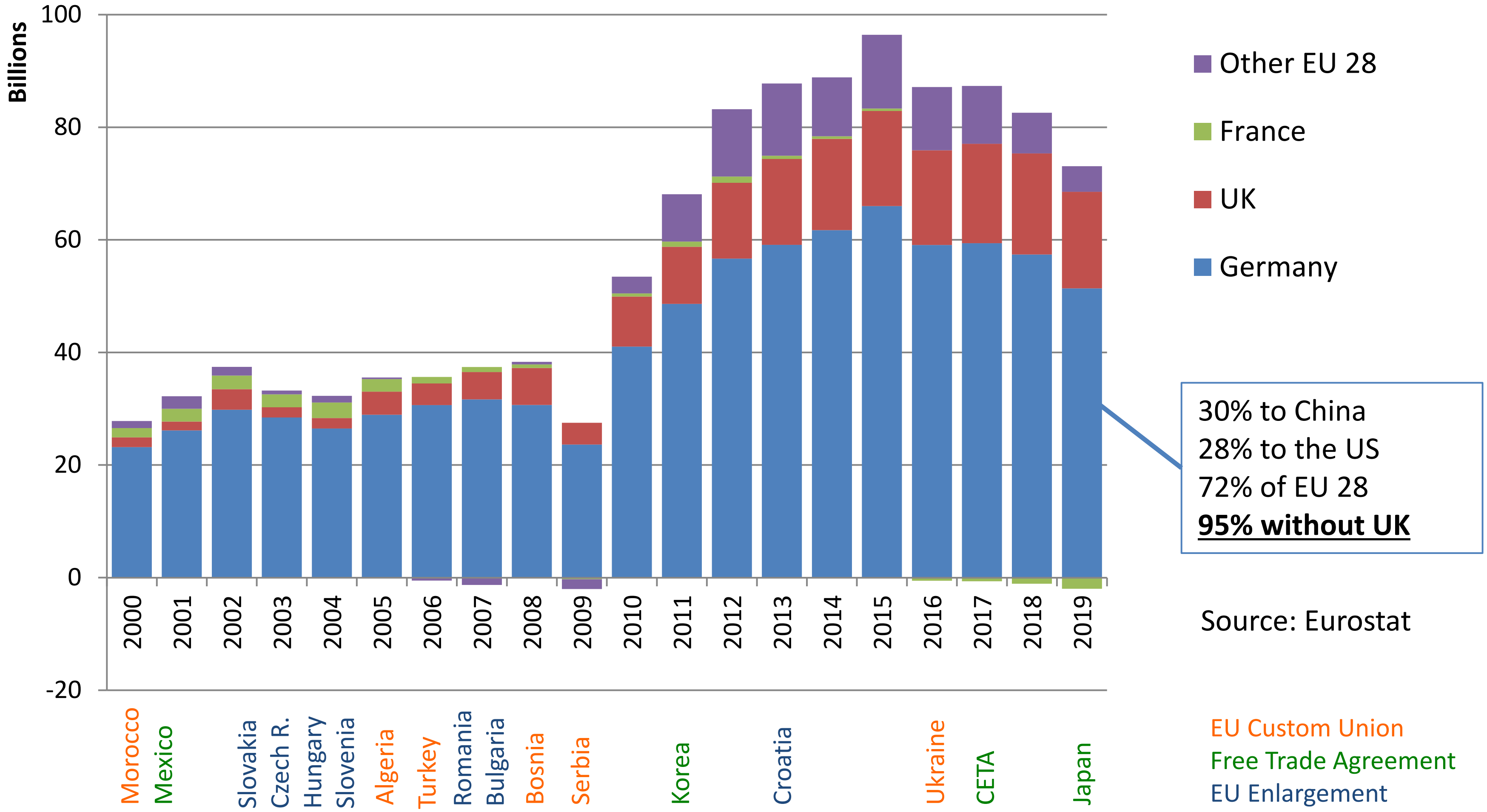
BEVs -200 kg
PHEVs +220 Kg

Best sold EV in 2020 → GM Wuling Hongguang MINI

9,2 kwh /
13,8 kwh
$4000-6000

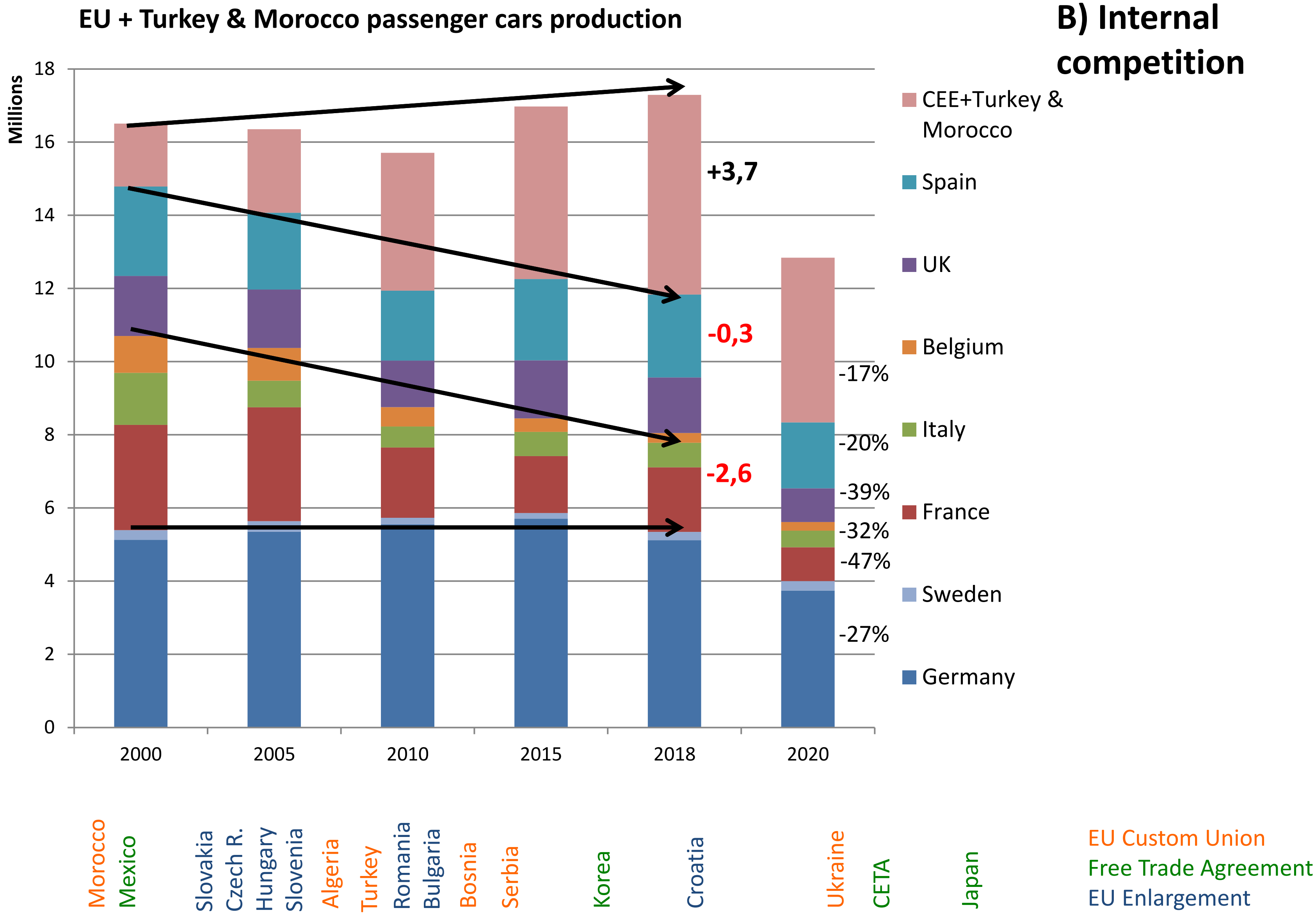
2) The single market blind spot A) Trade liberalization

Extra EU 28 trade balance in motor vehicles



Source: Eurostat

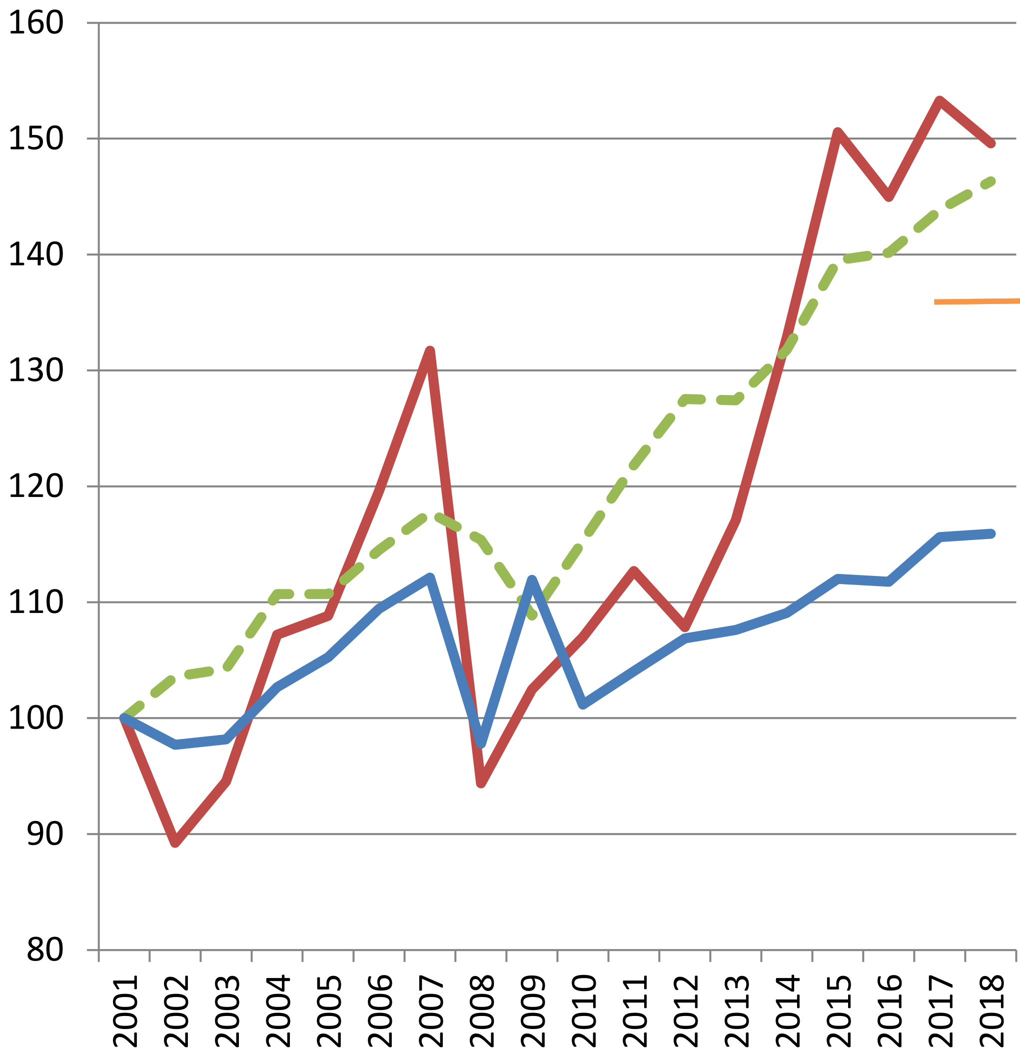
2) The Single Market blind spot: B) Internal competition



2) The Single Market blind spot: B) Internal competition

A race to the bottom:

The growing divide between personnel cost and gross value added in the European automotive sector (EU 27 without Germany)



See also Fana & Villani, JRC, (1) 2021

Inflation since 2000 **+36%**

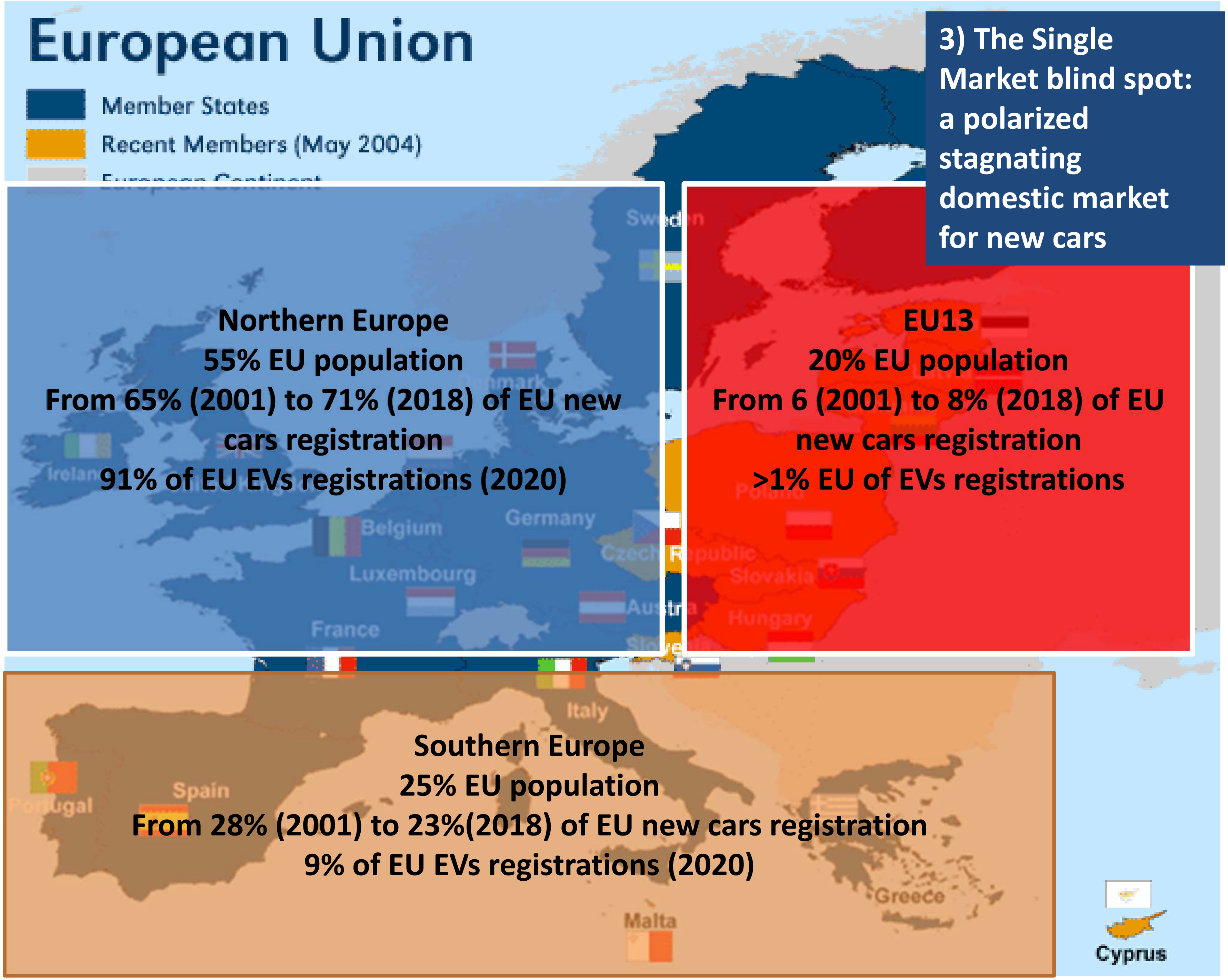
Average Gross Value Added **+50%**

Average Price of new cars [incl, tax] **+46%**

Average Personnel cost **+16%**

Source: Eurostat (Annual detailed enterprise statistics for industry - Manufacture of motor vehicles, trailers and semi-trailers)

3) The Single Market blind spot: a polarized stagnating domestic market for new cars



Northern Europe
55% EU population
From 65% (2001) to 71% (2018) of EU new cars registration
91% of EU EVs registrations (2020)

EU13
20% EU population
From 6 (2001) to 8% (2018) of EU new cars registration
>1% EU of EVs registrations

Southern Europe
25% EU population
From 28% (2001) to 23%(2018) of EU new cars registration
9% of EU EVs registrations (2020)