



EMPIRICAL EVIDENCE ON ENERGY AND CARBON TAXES IN THE EU

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Claudia Kettner & Daniela Kletzan-Slamanig

WIFO 



- EU has committed itself to ambitious climate targets
- EU CO₂ emissions from industry and energy supply are regulated under the EU ETS
- No comprehensive EU policy strategy to control emissions from private households, transport and other small sources
- EC proposal for a new energy taxation directive with more emphasis on carbon content of fuels not adopted in 2011
- Existing energy or carbon taxes serve mainly revenue raising, only in some cases an explicit reduction of emissions is intended
- Energy tax rates still differ widely between Member States and energy sources

- Cross-country comparison of energy taxes in EU MS
 - Review of energy tax rates by energy source and end-user category based on the EU's taxation reports
 - Focus on fuels in the road transport sector
 - Assessment of the CO₂ component included in the taxes
- Complimentary evidence on
 - GHG emissions
 - Tax revenues



Energy Tax Rates in EU MS in 2016 (€ / GJ)

	Coal - Heating business	Coal - Heating other	Petrol	Gasoil - Propellant	Gasoil - Industrial Comm.	Gasoil - Heating business	Gasoil - Heating other	Gas - Propellant	Gas - Industrial Comm.	Gas - Heating business	Gas - Heating other	Electricity - Business use	Electricity - Other
AT	1,70	1,70	15,20	11,43	11,43	3,14	3,14	1,66	1,66	1,66	1,66	4,17	4,17
BE	0,40	0,40	19,03	13,14	0,64	0,50	0,50	0,18	0,00	0,28	0,28	0,83	0,54
BG	0,31	0,31	11,07	9,19	9,19	9,19	9,19	0,00	0,00	0,31	0,00	0,28	0,28
CY	0,31	0,31	14,60	12,52	12,52	3,47	3,47	0,00	0,00	0,50	2,60	0,00	0,00
CZ	0,31	0,31	14,41	11,21	11,21	11,21	11,21	0,00	0,00	0,31	0,31	0,29	0,29
DE	0,30	0,30	20,19	13,30	1,49	1,49	1,49	0,00	0,00	1,53	1,53	4,27	5,69
DK	9,53	9,53	20,19	11,57	9,04	9,04	9,04	0,00	0,00	8,67	8,67	32,95	32,95
EE	0,93	0,93	14,18	12,46	12,46	12,46	12,46	0,00	0,00	1,01	1,01	1,24	1,24
ES	0,65	0,65	13,42	9,21	2,36	2,36	2,36	0,00	0,00	0,65	0,65	0,14	0,28
FI	7,00	7,00	20,77	14,08	5,95	5,95	5,95	0,00	0,00	4,84	4,84	1,95	6,26
FR	2,00	2,00	20,05	13,85	3,57	2,68	2,68	0,00	0,00	1,17	1,17	6,25	6,25
GR	0,30	0,30	20,43	9,18	9,18	9,18	9,18	0,00	1,50	1,50	1,50	1,04	0,61
HR	0,30	0,30	15,40	11,14	11,14	11,14	11,14	0,00	0,00	1,54	1,54	0,14	0,27
HU	0,30	0,30	11,70	9,81	9,81	9,81	9,81	2,63	0,30	0,15	0,29	0,14	0,27
HU	0,30	0,30	11,70	9,81	9,81	9,81	9,81	2,63	0,30	0,30	0,30	0,28	0,28
IE	1,89	1,89	17,92	13,32	2,84	2,84	2,84	2,60	1,03	1,03	1,03	0,14	0,28
IT	0,16	0,32	22,21	17,17	5,15	11,22	11,22	0,09	0,09	0,09	0,09	2,30	6,31
LT	0,15	0,30	13,24	9,18	9,18	0,59	0,59	6,56	0,00	0,00	0,00	0,14	0,28
LU	0,15	0,00	14,13	9,36	0,58	0,28	0,28	0,00	0,00	0,00	0,00	0,14	0,28
LV	0,30	0,30	13,29	9,48	1,09	1,09	1,09	2,60	1,03	1,03	1,03	0,14	0,28
MT	0,30	0,30	16,75	13,14	13,14	6,46	6,46	0,00	0,00	0,00	0,00	0,14	0,28
NL	0,54	0,54	23,47	13,48	13,48	13,48	13,48	2,55	0,00	0,00	0,00	7,42	27,97
PL	0,30	0,30	13,11	9,56	9,56	1,52	1,52	2,48	2,48	2,48	2,48	0,31	1,31
PT	0,59	0,59	18,83	11,18	2,51	9,53	9,53	3,13	0,59	0,59	0,59	0,28	0,28
RO	0,16	0,32	14,08	11,95	11,97	11,95	11,95	2,79	2,79	0,18	0,34	0,15	0,30
SE	12,89	12,89	20,57	17,19	8,36	8,36	12,02	6,40	5,87	5,87	8,89	0,15	8,65
SI	1,90	1,90	16,62	12,86	7,06	5,63	5,63	3,45	3,45	1,42	1,42	0,85	0,85
SK	0,31	0,00	16,24	10,49	10,49	10,49	10,49	2,60	2,60	0,37	0,37	0,37	0,00
UK	0,00	0,00	20,55	18,75	3,60	3,60	3,60	6,59	0,00	0,00	0,00	0,00	0,00
EU MED*	0,15	0,30	10,95	9,18	0,58	0,58	0,58	2,60	0,30	0,15	0,30	0,14	0,28

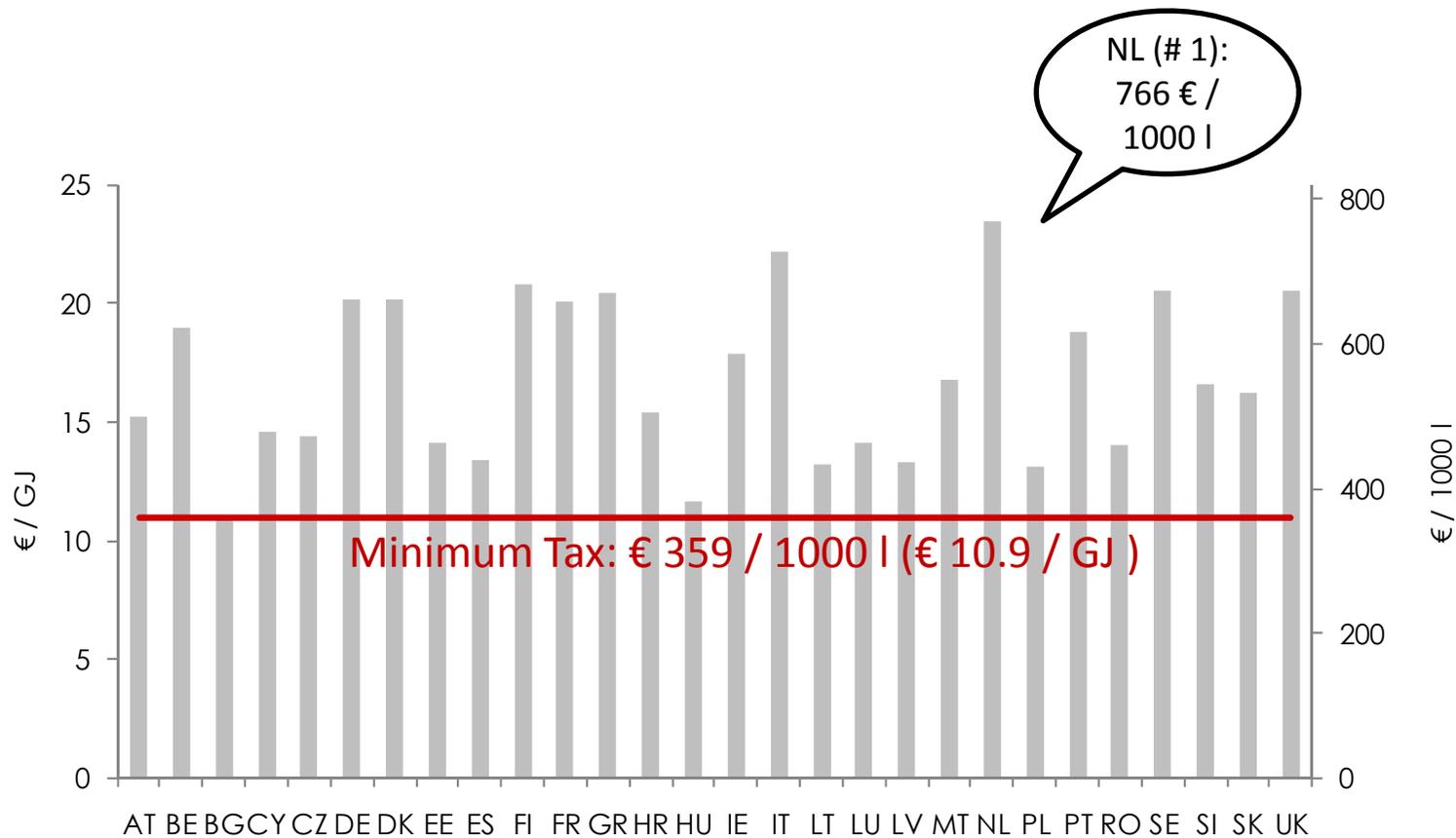
Highest tax rates for petrol and gasoil

...and in some MS also for electricity

Source: EC Excise Duty Tables January 2016

Petrol Tax Rates in EU MS

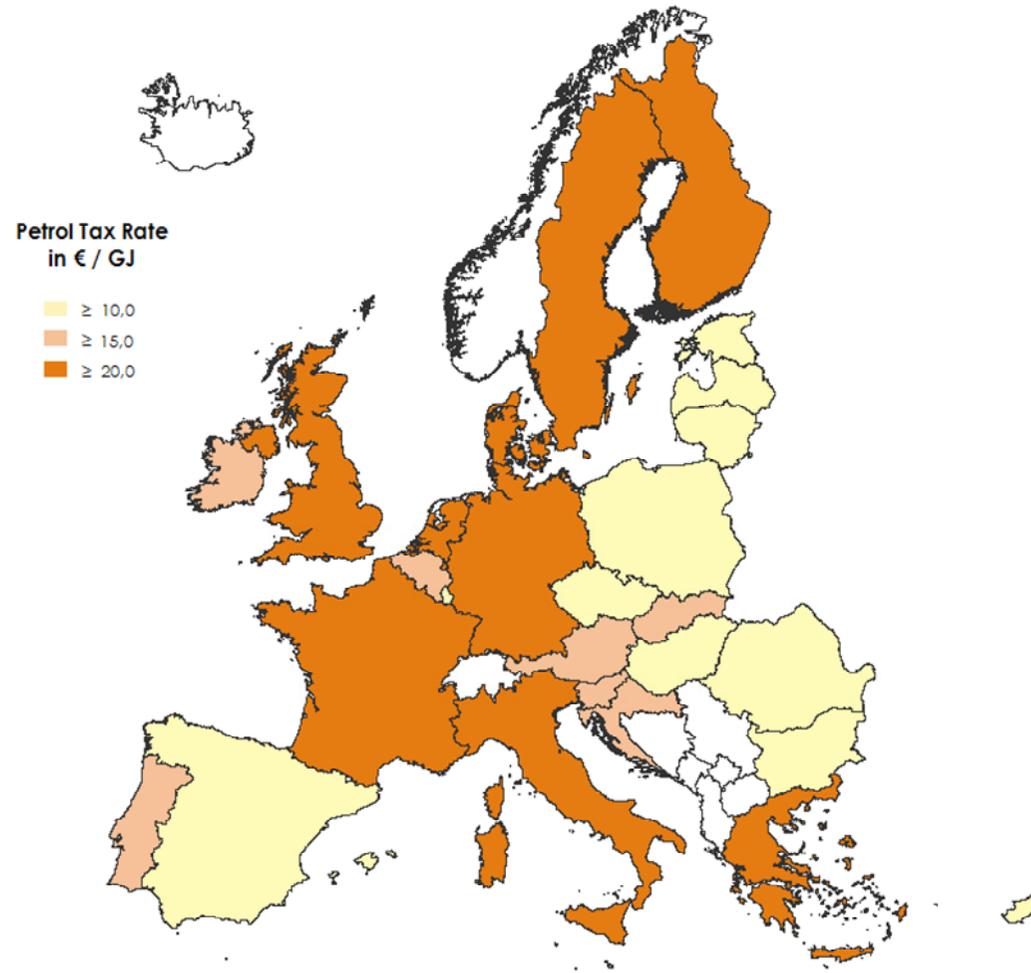
2016 (I)



Source: EC Excise Duty Tables January 2016

Petrol Tax Rates in EU MS

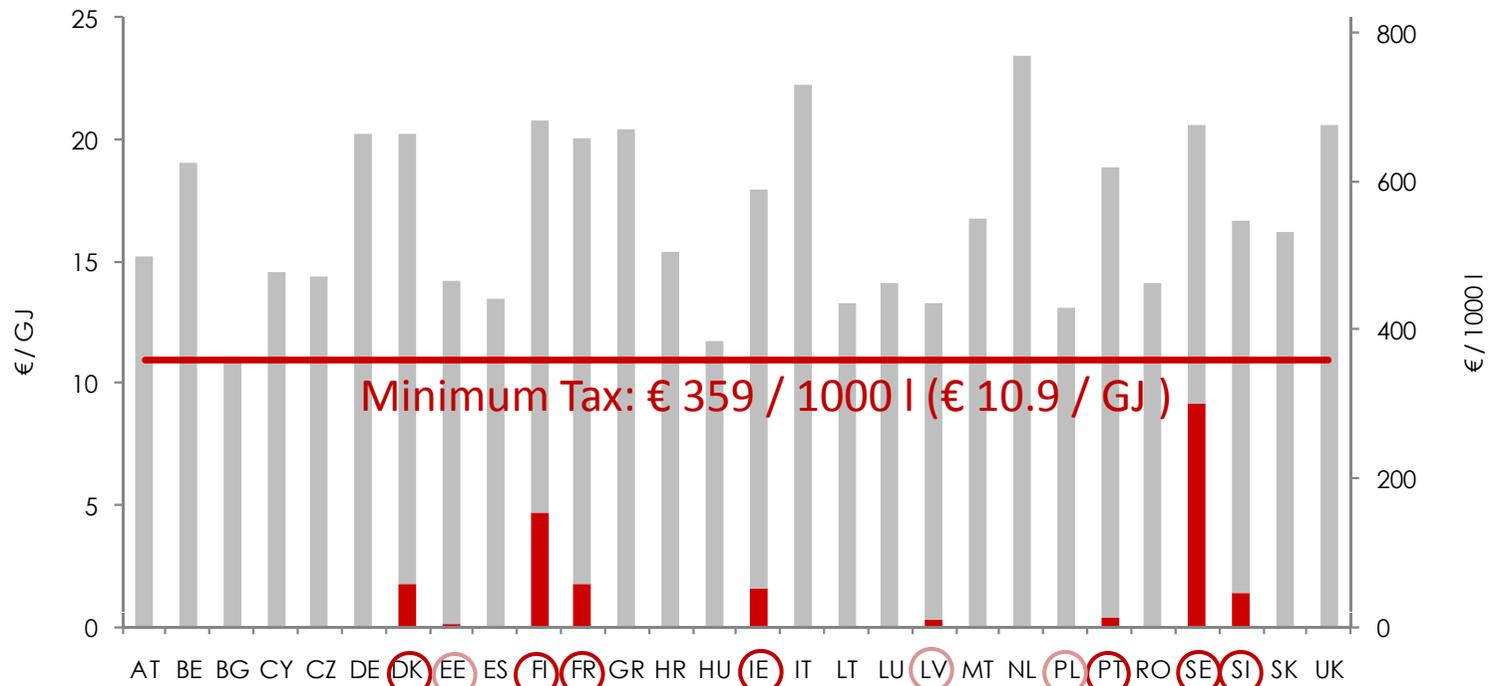
2016 (II)



Source: EC Excise Duty Tables January 2016

Petrol Tax Rates in EU MS

2016 (III)

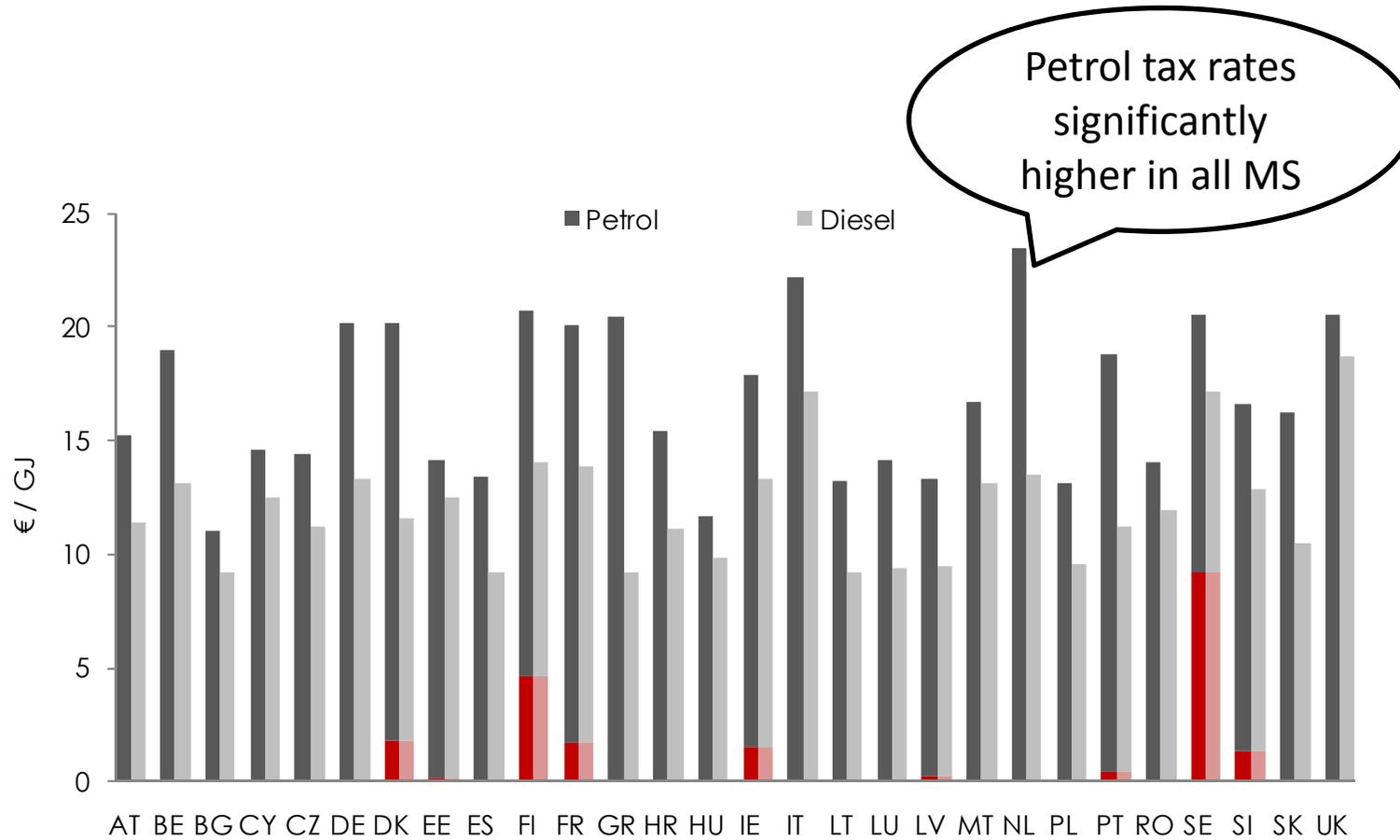


Source: EC Excise Duty Tables January 2016

Taxes in 7 countries have an explicit carbon component

Petrol vs. Diesel Taxes in EU MS

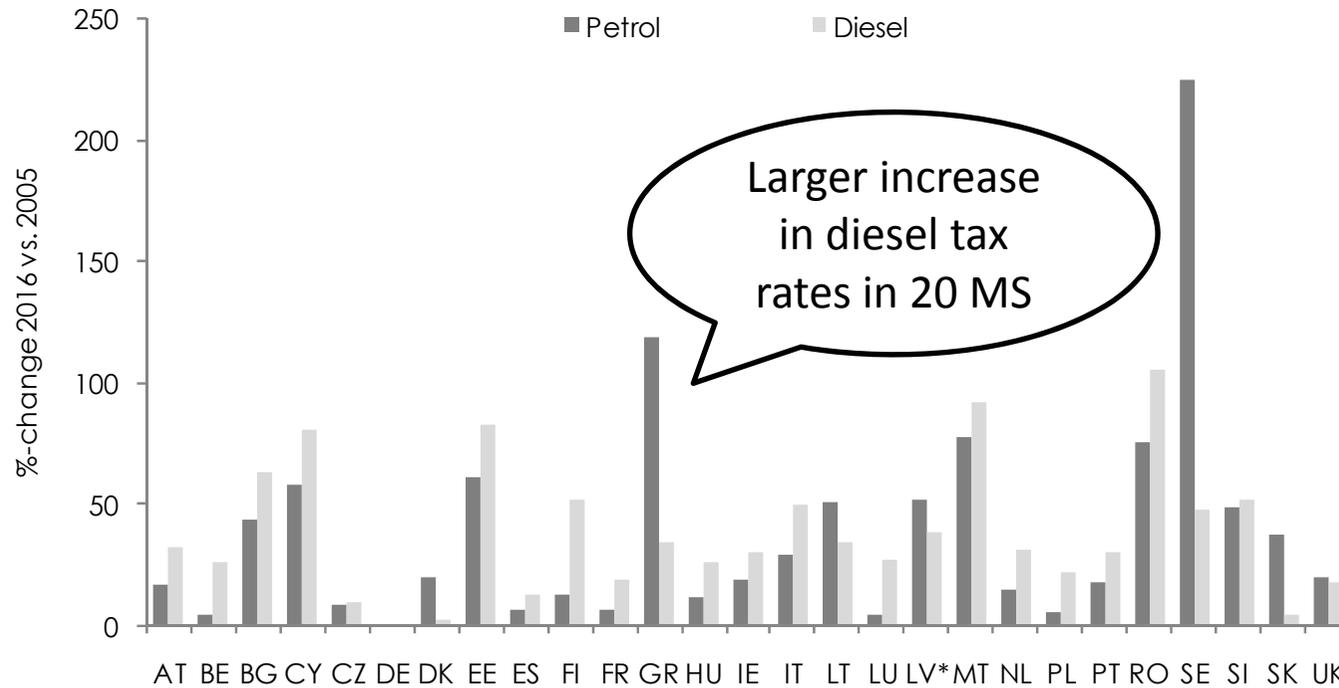
2016



Source: EC Excise Duty Tables January 2016

Petrol vs. Diesel Taxes in EU MS

Development 2005/2016

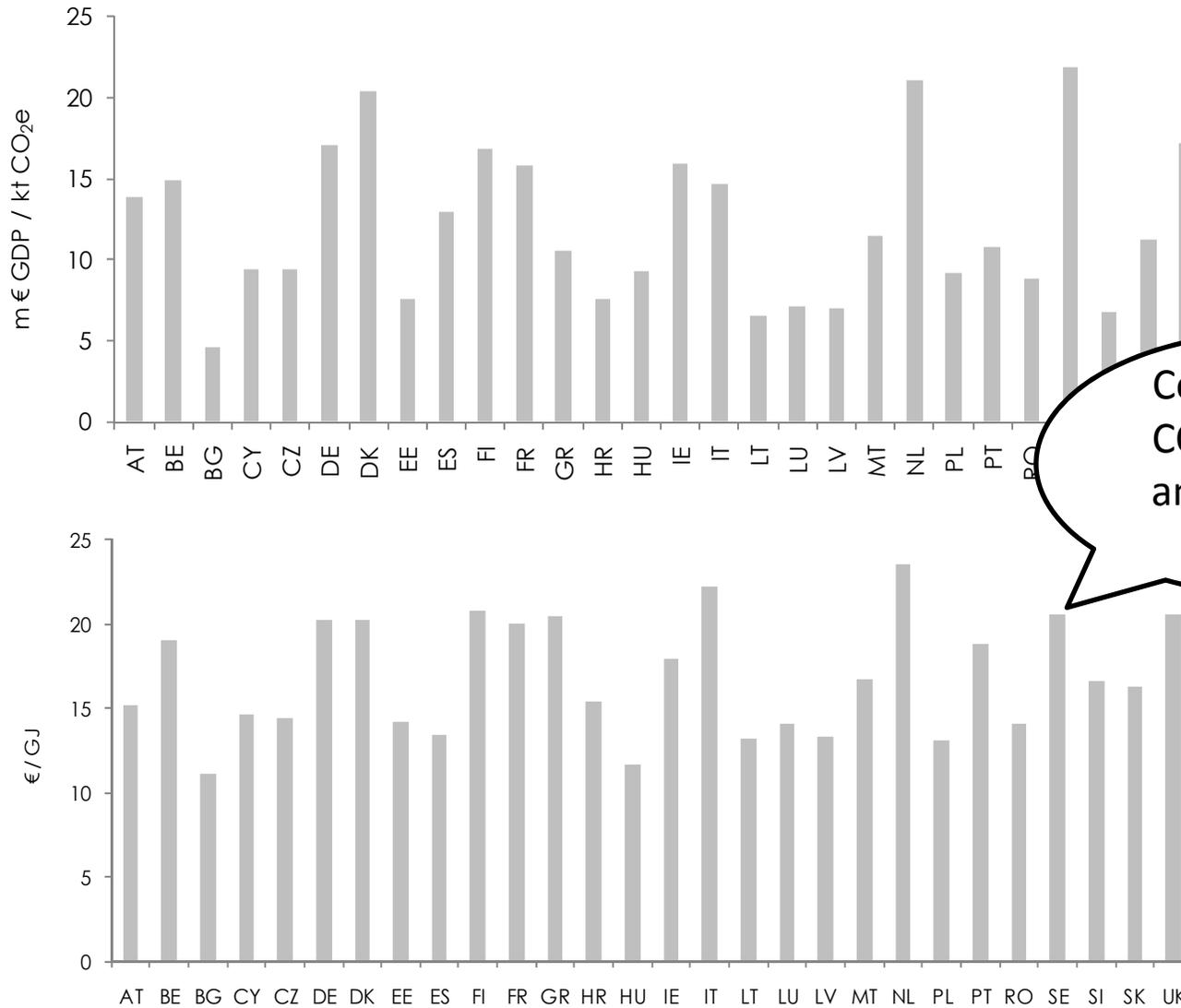


Source: EC Excise Duty Tables January 2005, 2016



Transport GHG Emissions and Tax Rates

2014

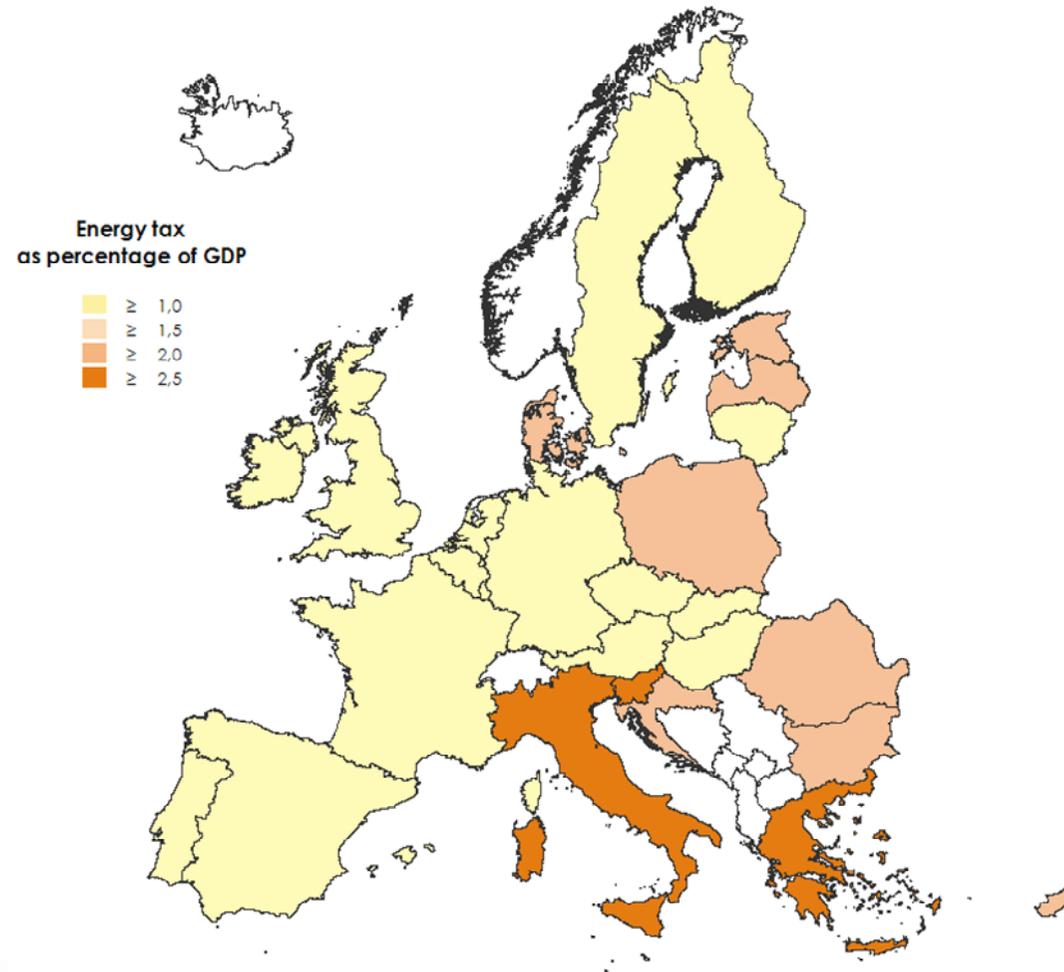


Correlation of CO₂ efficiency and petrol tax rates

Source: EC Excise Duty Tables January 2005, 2016

Energy Tax Revenues in EU MS

2014

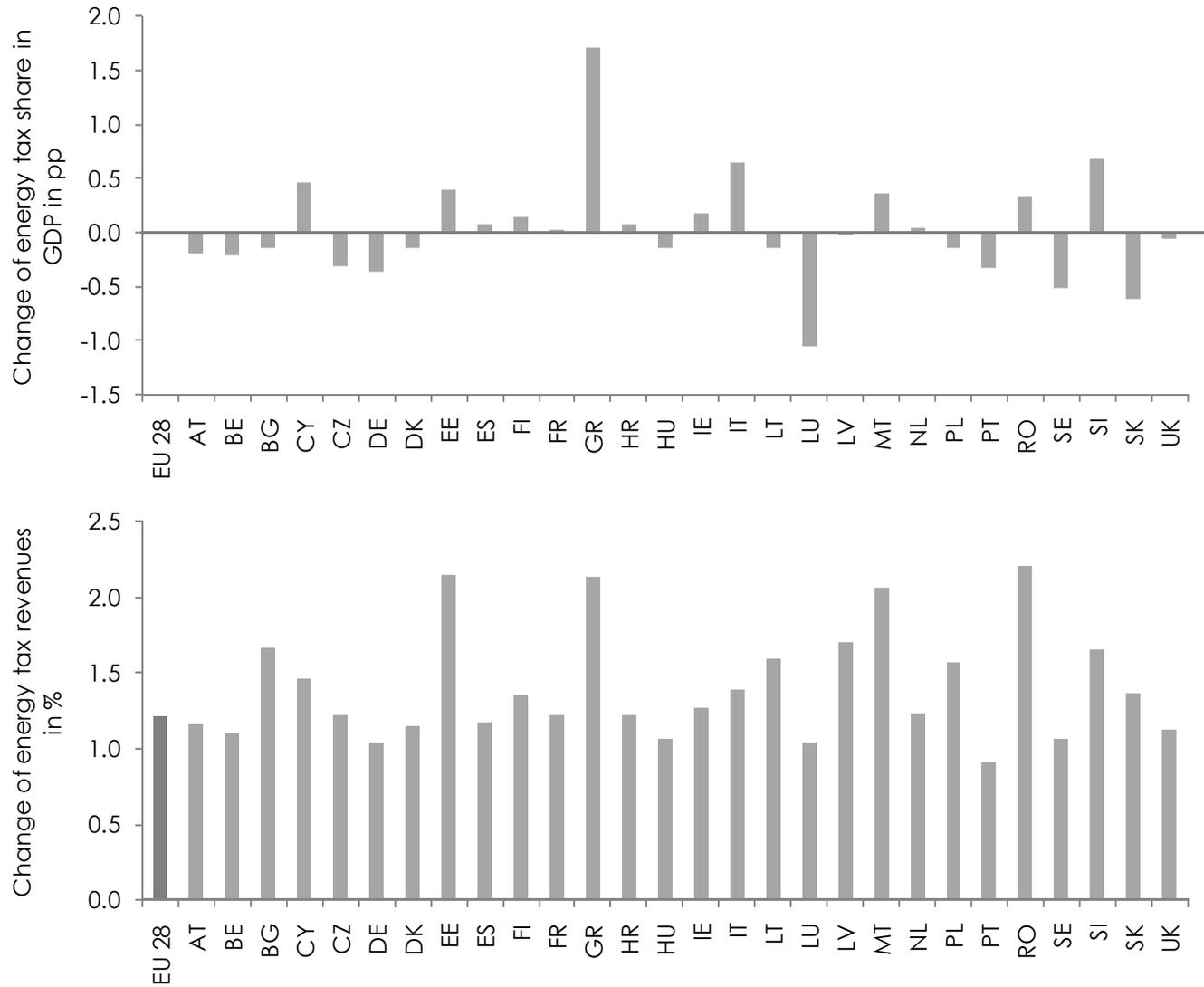


Source: EC Excise Duty Tables January 2005, 2016



Energy Tax Revenues in EU MS

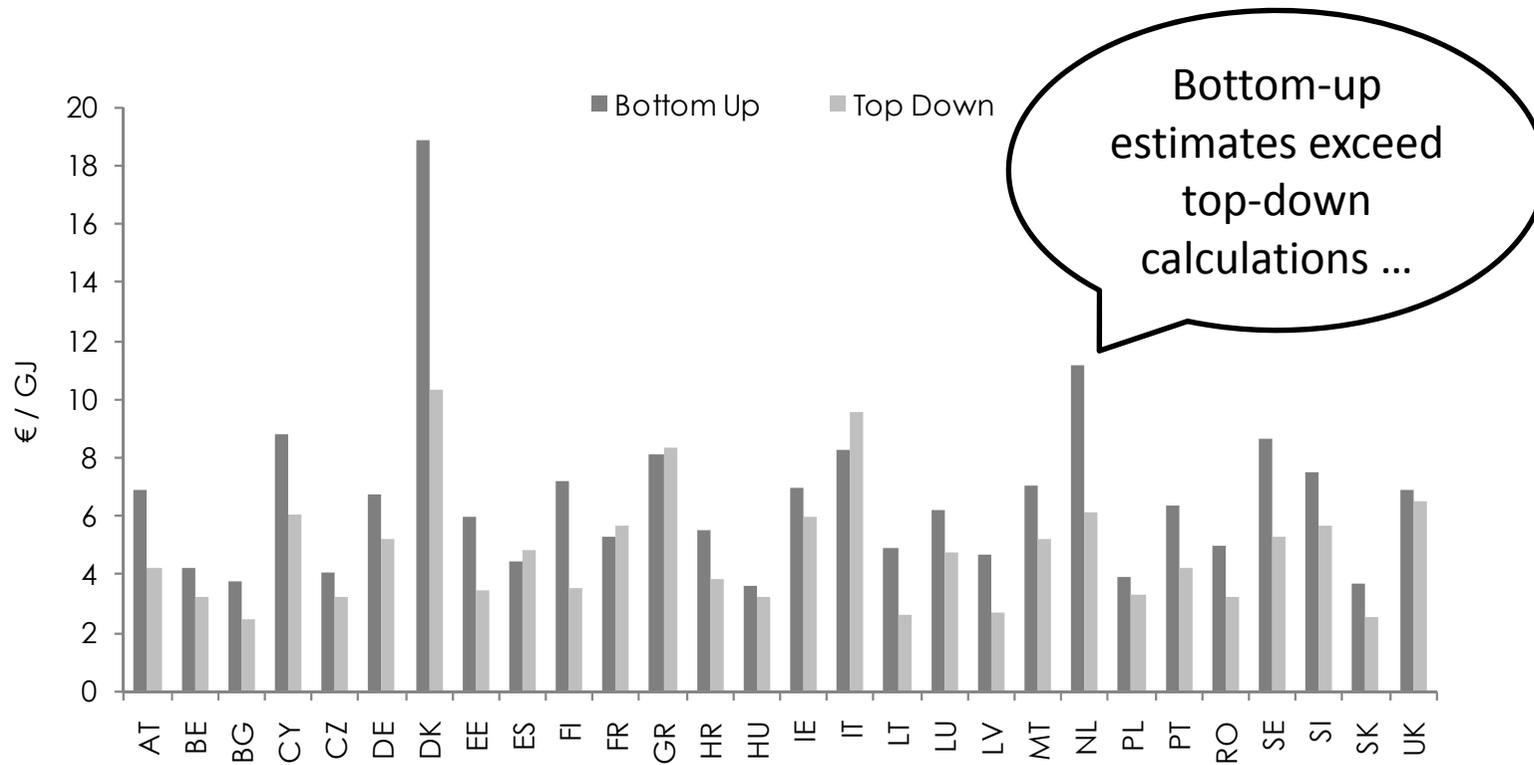
Development 2005/2014



Source: EC Excise Duty Tables January 2005, 2016

Implicit Energy Tax Rates in EU MS

2014 (I)



Source: EC Excise Duty Tables January 2005, 2016; Eurostat

Difference partly due to missing information on tax exemptions

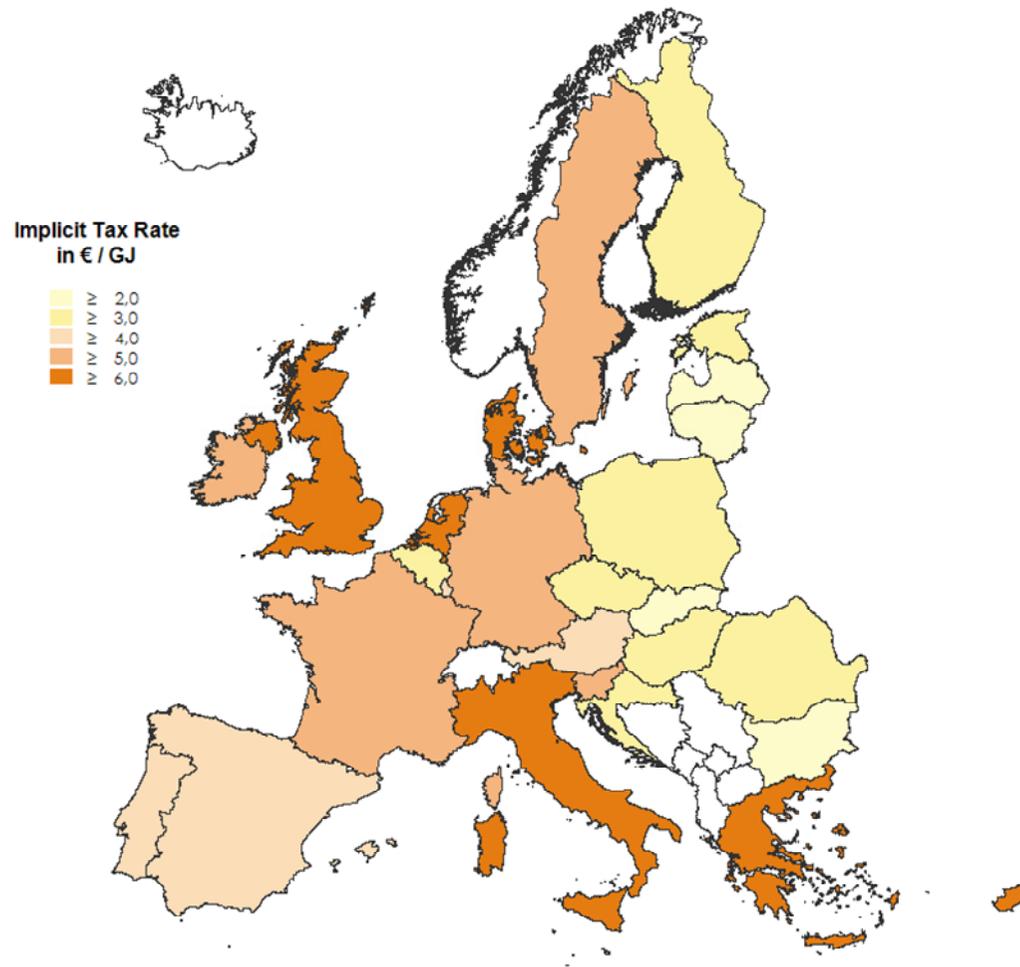
Tax Exemptions in OECD Countries

	Exemptions	Exemptions		Refunds
	Total	Fossil fuel taxes	Motor vehicle taxes	Total
Number	1813	845	524	148

Source: OECD, Political economy of envir. related taxes (2006)

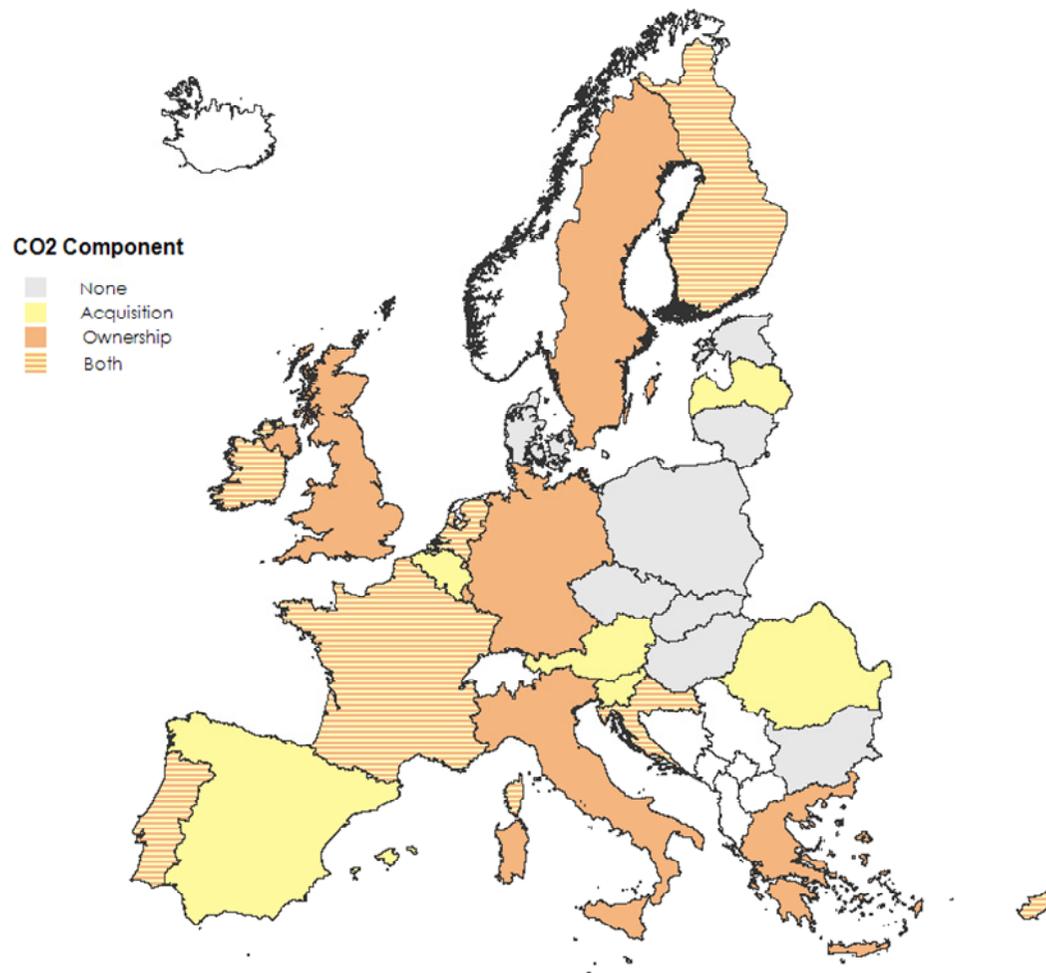
Implicit Energy Tax Rates in EU MS

2014 (II)



Source: Eurostat

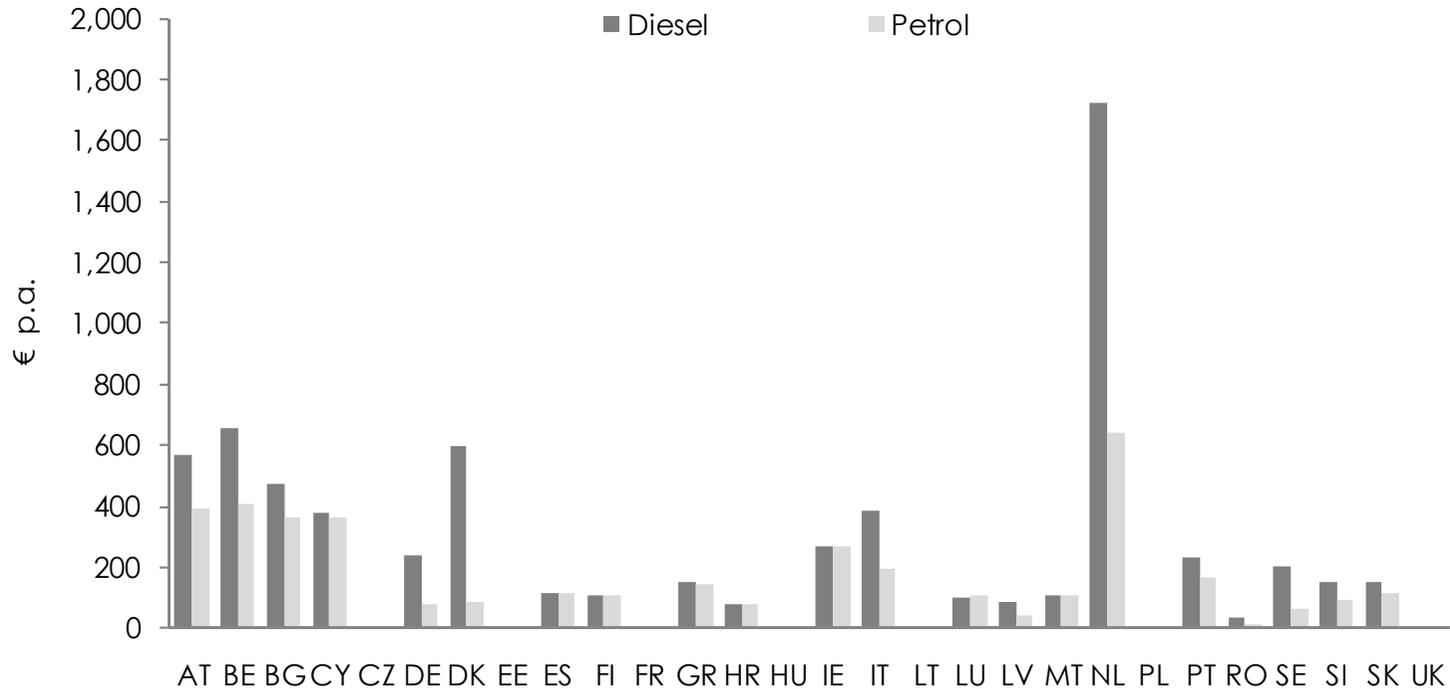
- Taxes directly based on carbon emissions are the first best solution according to economic theory
- In a real world setting non-recurrent and recurrent taxes can contribute to GHG reductions
 - Consumers' myopia – only usage costs up to 5 years after purchase considered, but effective use periods significantly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



Source: Source: ACEA Tax Guide 2016

Annual Vehicle Ownership Taxes

2016



Source: ACEA Tax Guide 2016

An average Austrian passenger car with the following characteristics is assumed:

	Specific CO ₂ emissions (g/km)	Mass (kg)	Engine power (KW)	Engine capacity (cm ³)
Diesel	126	1,640	100	1,837
Petrol	122	1,261	77	1,323

- Commission Proposal for New Energy Taxation Directive (COM/2011/169) not adopted (requirement of unanimity)
 - Energy (and carbon) tax rates differ pronouncedly between MS, energy sources and sectors
 - Carbon taxes exist only in one third of the MS
- Better alignment of energy taxes with carbon content advisable
- Interaction with EU ETS need to be considered

Thank you!

claudia.kettner@wifo.at

Further information available at:

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