Environmentally Harmful Subsidies in the Transport Sector

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By

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Background

- Michael Donohue, currently with Health Canada, prepared a paper [OECD, 2008] while he worked in the OECD Environment Directorate in 2006-2007, with the aim to help policy makers *better understand* the broad literature available on environmentally harmful subsidies in the transport sector.
- The idea was *not to present a new estimate* of the amount of environmentally harmful subsidies being given.
- Available at www.oecd.org/officialdocuments/displaydocumentpdf/?cote=env/epoc/wpnep/t(2007)1/final.

UNITE: Net costs of road transport

Million Euro

	Infra-structure costs	External (Social) impacts	Total social costs	Total Government revenues	Net effect on revenue	Net social impact
	A	B	C=A+B	D	E=D-A	F=D-C
Austria	4,382	4,120	8,502	4,923	541	-3,579
Belgium	1,570	3,828	5,398	6,239	4,669	841
Denmark	400	1,847	2,247	4,558	4,158	2,311
Finland	1,119	1,031	2,150	3,626	2,507	1,476
France	25,520	39,508	65,028	44,016	18,496	-21,012
Germany	26,176	50,478	76,654	41,416	15,240	-35,238
Greece	2,802	10,111	12,913	5,520	2,718	-7,393
Hungary	6,075	2,326	8,401	1,882	-4,193	-6,519
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Adapted from UNITE final report, (Nash *et al*., 2003), page 41 in OECD (2008).

External Costs of Transport,

By category and mode, EU15 + Norway & Switzerland

	Total	%	Road		Rail		Aviation	
			Passenger	Freight	Passenger	Freight	Passenger	Freight
Accidents	156,439	24	136,394	19,194	262	0	590	0
Noise	45,644	7	21,533	18,877	1,354	782	2,903	195
Air pollution	174,617	27	55,444	108,838	2,351	2,096	3,875	360
Climate change, high	195,714	30	69,472	42,911	2,094	800	74,493	5,438
Climate change, low	*27,959*	*4*	*9,925*	*6,130*	*299*	*114*	*10,642*	*777*
Nature & Landscape	20,014	3	11,105	7,254	202	64	1,211	87
Up- / Downstream	47,376	7	21,240	22,243	1,140	608	1,592	170
Urban effects	10,472	2	6,112	3,797	426	137	0	0
Total	**650,275**	**100**	**321,301**	**223,114**	**7,828**	**4,487**	**84,664**	**6,250**

INFRAS (2004) – page 42 in OECD (2008).

Different theoretical approaches to defining subsidies I

- Subsidies stem (only) from Government actions *vs.* subsidies can originate from society as a whole.
  - Environmental externalities would be treated differently.
- Subsidies are quantified relative to *average vs. marginal* costs.
  - How much does it cost to provide an additional unit of some type of transport service?
  - From an economic perspective, net wellbeing is maximised when users pay a price equal to the *long-term marginal cost*.
  - This can, however, lead to *reduced public revenues*.

Different theoretical approaches to defining subsidies II

- Total subsidies vs. relative subsidies.
  - Of importance when comparing different modes.
- Measuring *social* subsidies
  - Necessary to estimate the magnitude of environmental externalities
- Measuring *Government* subsidies
  - On-/off-budget measures (*e.g.* trade barriers, etc.)
  - Only direct expenses or also forgone revenues (*e.g.* tax rate reductions)?

Transport Sector Policy Guidance I

- Rather than focusing on a “best” subsidy definition, policy makers should understand *why* the different definitions exist, and *what the policy implications of them are*.
- It is not required that all policy makers agree on the measurement approach to use, what the “measuring stick” should be, or what should be included in measurements. What is important, is that policy makers *understand* the approaches that are used.
- *Total subsidy* levels may be meaningful for accounting purposes, in terms of knowing the big picture, how much money is going where, or which industries and transport modes cause the most total damage to society.
- If one actually wants to do something about problematic subsidies, then *relative subsidies* provide a more meaningful indicator.

Transport Sector Policy Guidance II

- From a *social justice perspective*, *total social costs* *vs.* total social benefits may be the most appropriate subsidy definition.
- From an *economic efficiency perspective*, a better definition of subsidies is as *a failure of users to cover the marginal social cost* of their activity. Economic efficiency is maximised when the price a user pays, is equal to the marginal cost that the user imposes, on society as a whole.
- If the user-price falls short of marginal social cost, then the difference could be considered the subsidy.
- There are, however, also disadvantages of including non-internalised externalities in the subsidy definition.

Transport Sector Policy Guidance III

- Focusing too strongly on "*subsidies*" detracts from the ultimate aim of environmental (or transport) policy – which should be to "improve the *wellbeing* of the people".
- Policy makers should not lose track of the big picture. The purpose of environmental policy is not to protect or improve the environment at all cost, but rather to ensure that the environment contributes as much as possible to the wellbeing of citizens.
- And environmental-transportation policy is not simply intended to reduce the environmental impacts of transport, but to improve the relationship between transport and environment in such a way that the wellbeing of society is enhanced.

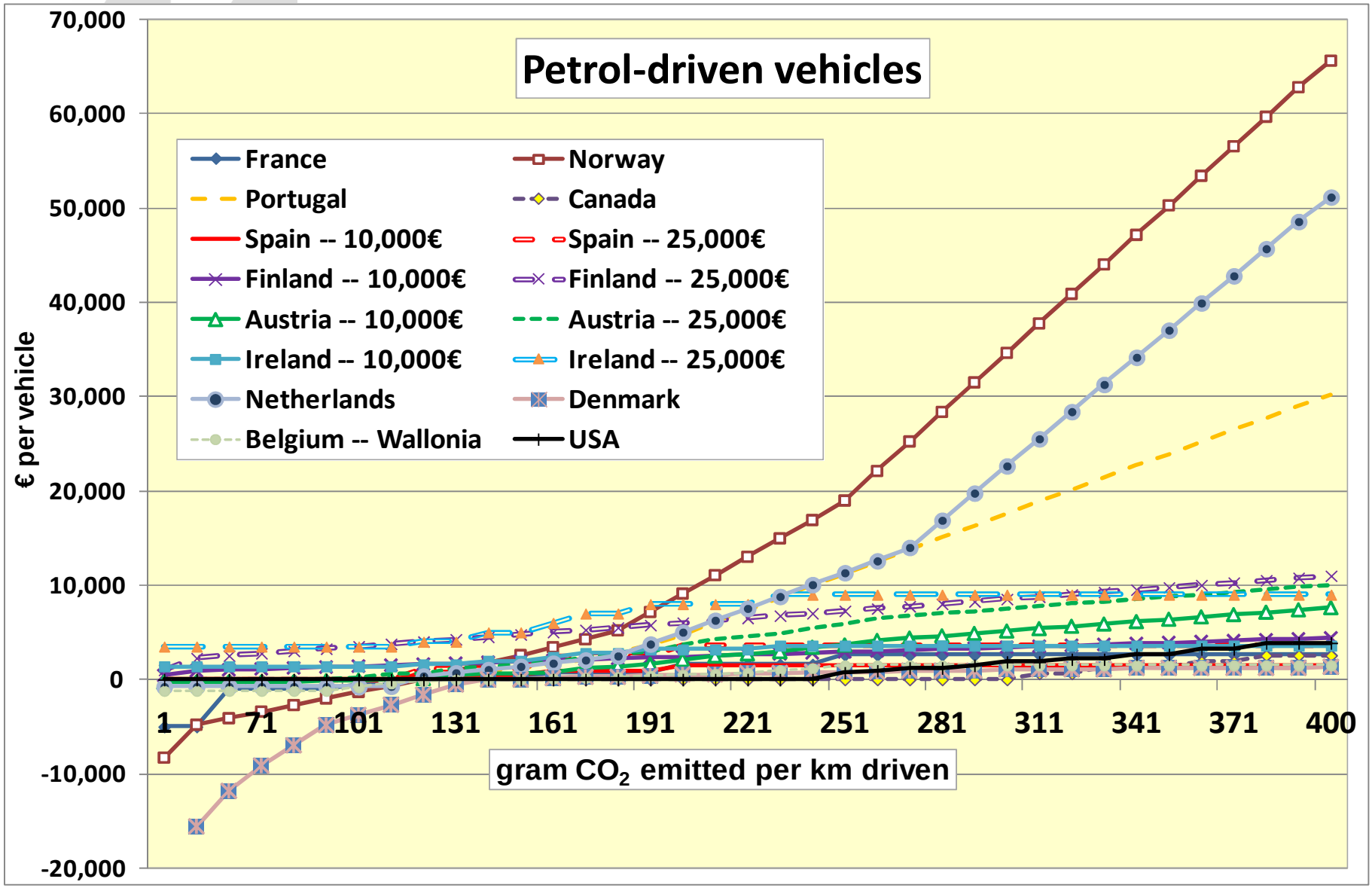
Transport Sector Policy Guidance IV

- "Environmental quality" is currently being produced / maintained at too low levels in many countries.
- Rather than asking themselves "which subsidies should be reduced", policy makers should ask, "where and how can we intervene to improve standards of living".
- The focus should be on *government intervention*, whether it is classified as subsidy or not.
- One should try to find those places in the transport system *where marginal social costs are (much) larger than marginal social benefits*.
- These are the areas where the market is producing too much.
- Government support should be decreased in these areas.

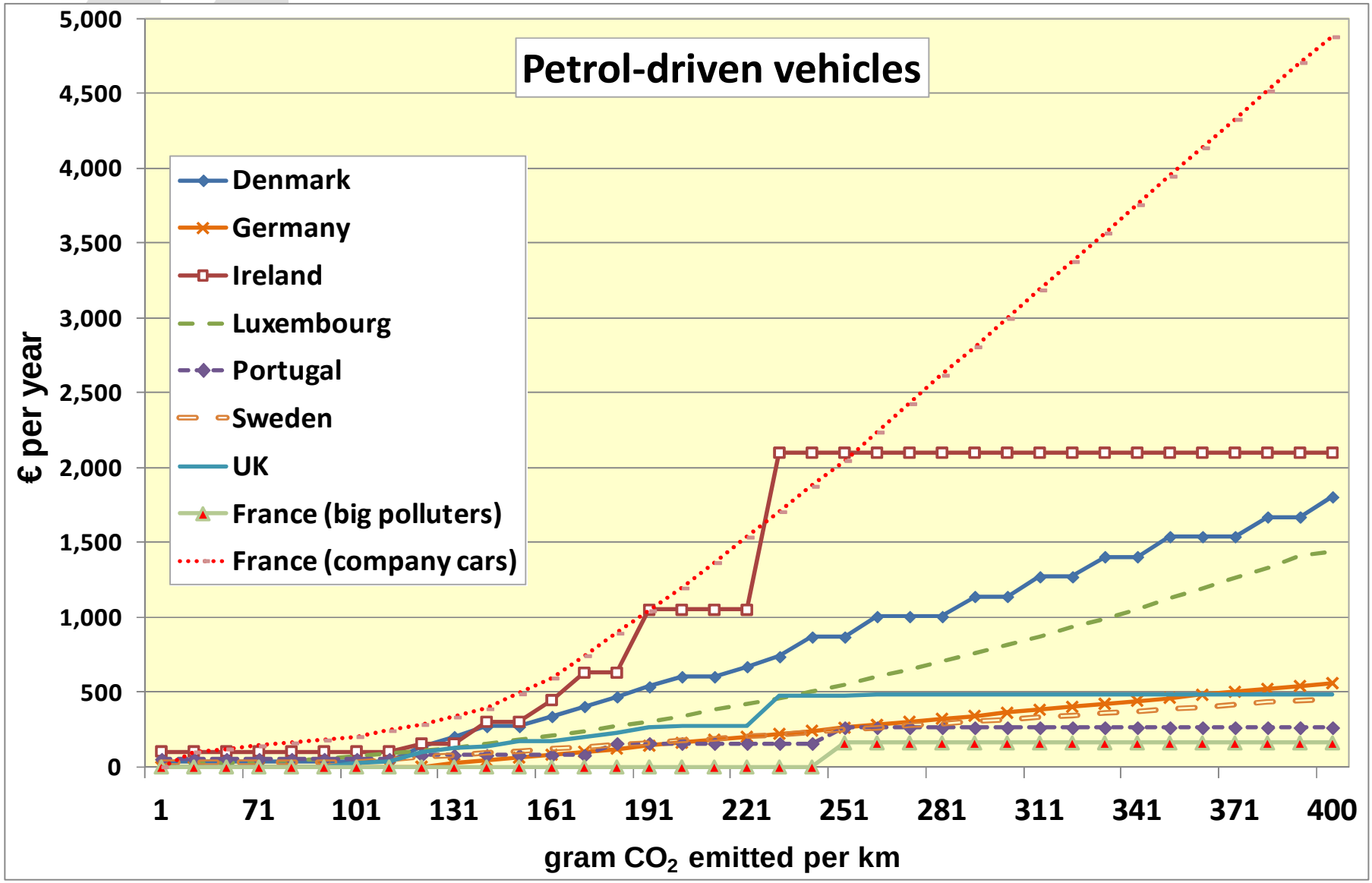
Identifying Policies and Programmes for Revision

- *Think Big*: target first areas where the potential for generating benefits is the largest. Focus on activities with a *significant gap* between marginal costs and benefits, and that are *widespread*.
- *Pick Low-Hanging Fruits*: Give priority to problems that can be fixed easily. The less complicated a support mechanism is, the easier can be to reduce it. Changing the value of existing measures is often easier than creating entirely new support structures.
- *Work **With** Markets*: It is much easier to modify existing markets, than to create a new market. Markets can alter people's behaviour much more efficiently than direct regulation can, by allowing transport users flexibility to decide for themselves.
- *Apply **Direct** (Support) Measures:* If *e.g.* you wish to reduce NO_x emissions, then develop a policy that targets NO_x emissions as directly as possible.

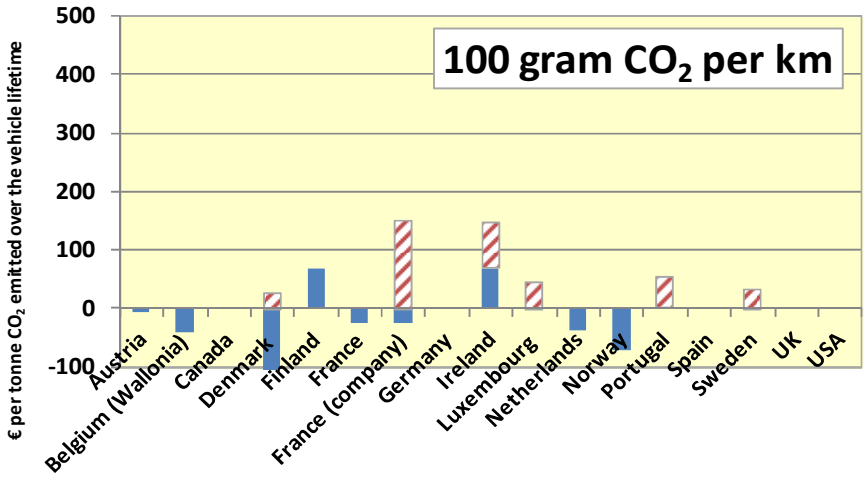
CO_2- related differentiation of motor vehicle taxes, I: One-off taxes

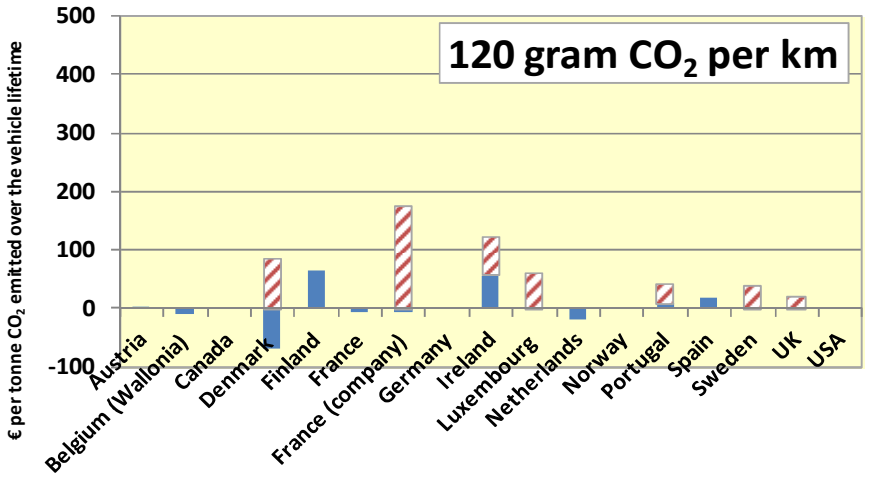


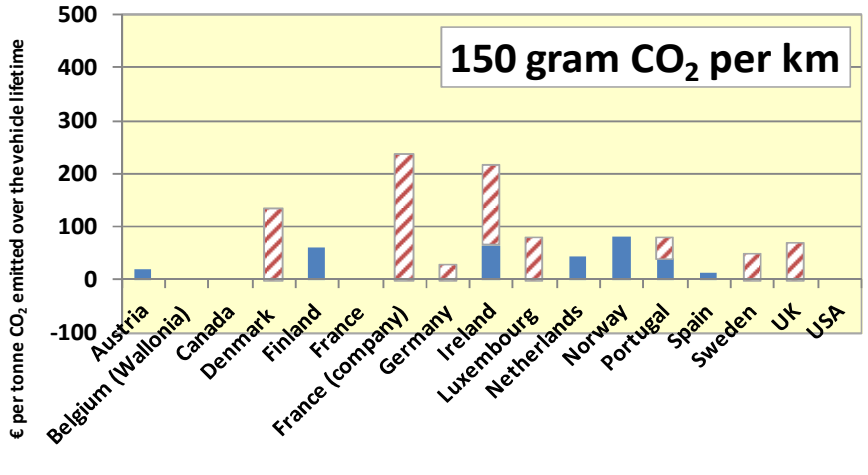
CO_2- related differentiation of motor vehicle taxes, II: Recurrent taxes

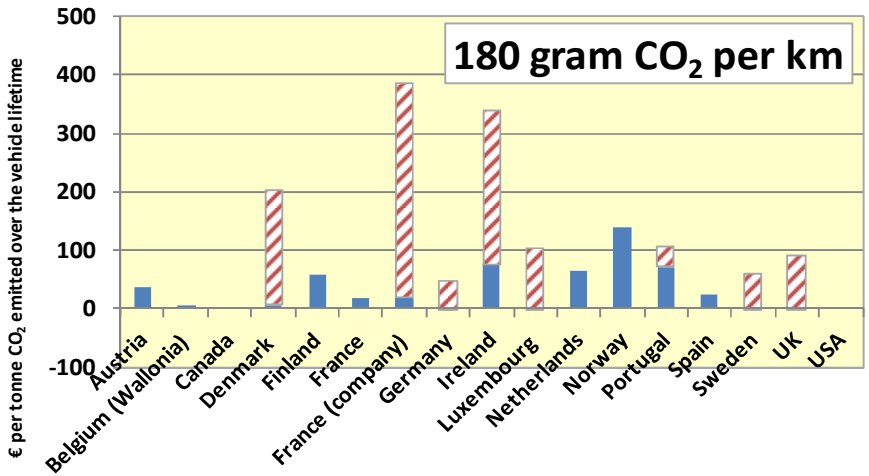


CO_2- related differentiation of motor vehicle taxes, III: Total taxes, per tonne CO_2









One-off Recurrent

Meta-analysis of Value-of-Statistical-Life estimates I

- If one is to assess the marginal social costs of transport activities (*e.g.* for estimating subsidy amounts), estimates of the *economic value of related fatalities* are needed.
- With economic support from i.a. the EU Commission, OECD has analysed all VSL estimates derived from *stated preferences* surveys all over the world, applied in environment, health and traffic risk contexts.
- I.e., people have been asked how much they would be willing to pay for a small mortality risk reduction.
- For EU-wide policies, the study recommends a VSL value of 3.5 million 2005-USD (approximately 3.1 million 2010-€).

Meta-analysis of Value-of-Statistical-Life estimates II

- When assessing policies, or marginal social costs, in individual countries, one should adjust the EU estimate for differences in income levels, according to the formula: $VSL_p = VSL_s (Y_p / Y_s)^{ß}$
- where VSL_p: value in policy country; VSL_s: EU value; Y_p: income level in policy country; Y_s: EU income level; and ß: income elasticity of VSL, estimated to be about 0.8.
- See www.oecd.org/env/policies/vsl for more information, including all the underlying data.