OECD'S META-ANALYSIS OF VSL ESTIMATES AND LATER USE OF ITS FINDINGS

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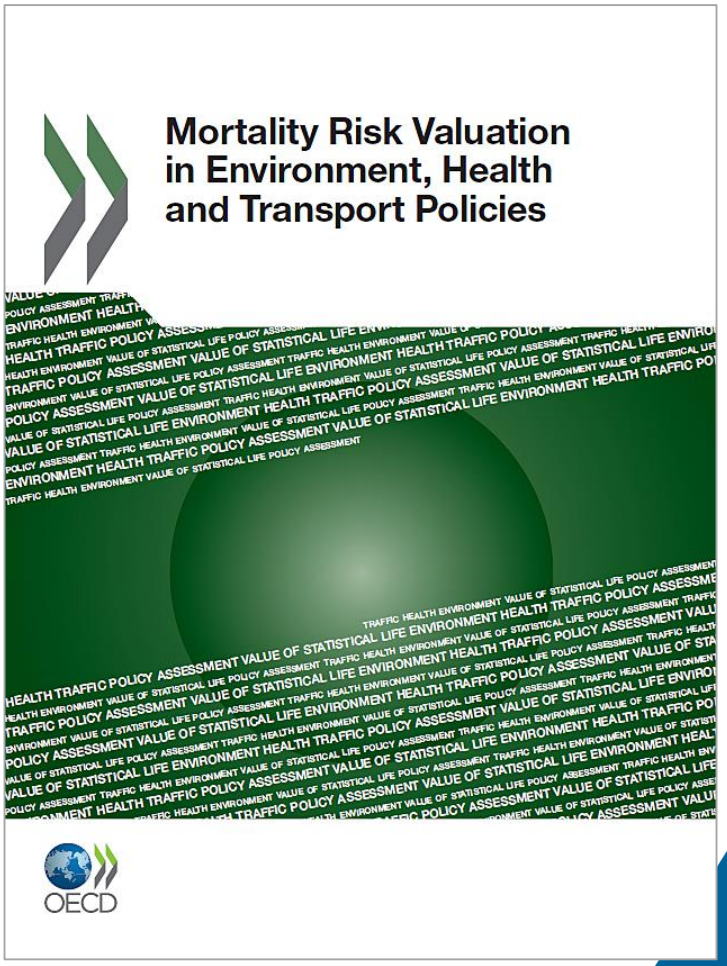
Introduction

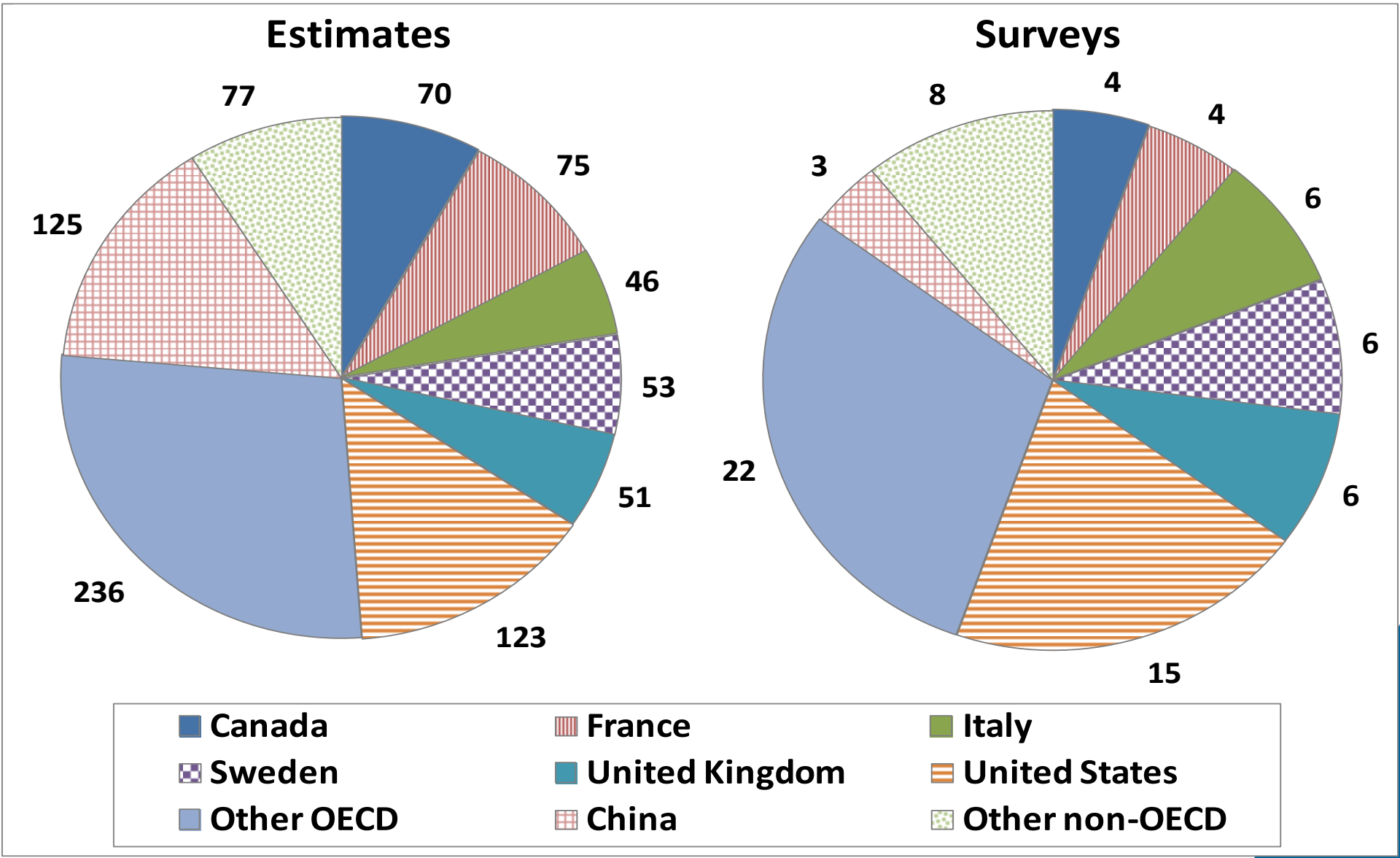
- In 2012, OECD issued the book *Mortality Risk Valuation in Environment, Health and Transport Policies*.
- The book was the result of a multi-year project that included a meta-analysis of all available VSL estimates based on stated preferences surveys.
- This introduction will briefly describe the meta-analysis and highlight some later uses OECD has made of the results of the analysis.



OECD's meta-analysis of VSL estimates

- Covered all available *mean* VSL estimates from SP surveys made using environmental, health and traffic risk contexts.
- Excluded "willingness-to-accept" (WTA) estimates.
- Countries can draw on this analysis to do "value transfers":
  - Estimating a VSL value to use in *their* policy assessments based on VSL values already estimated in *other* countries, taking due account of relevant differences between the countries concerned.
- A domestic SP study would be *better* – but also more *costly*.

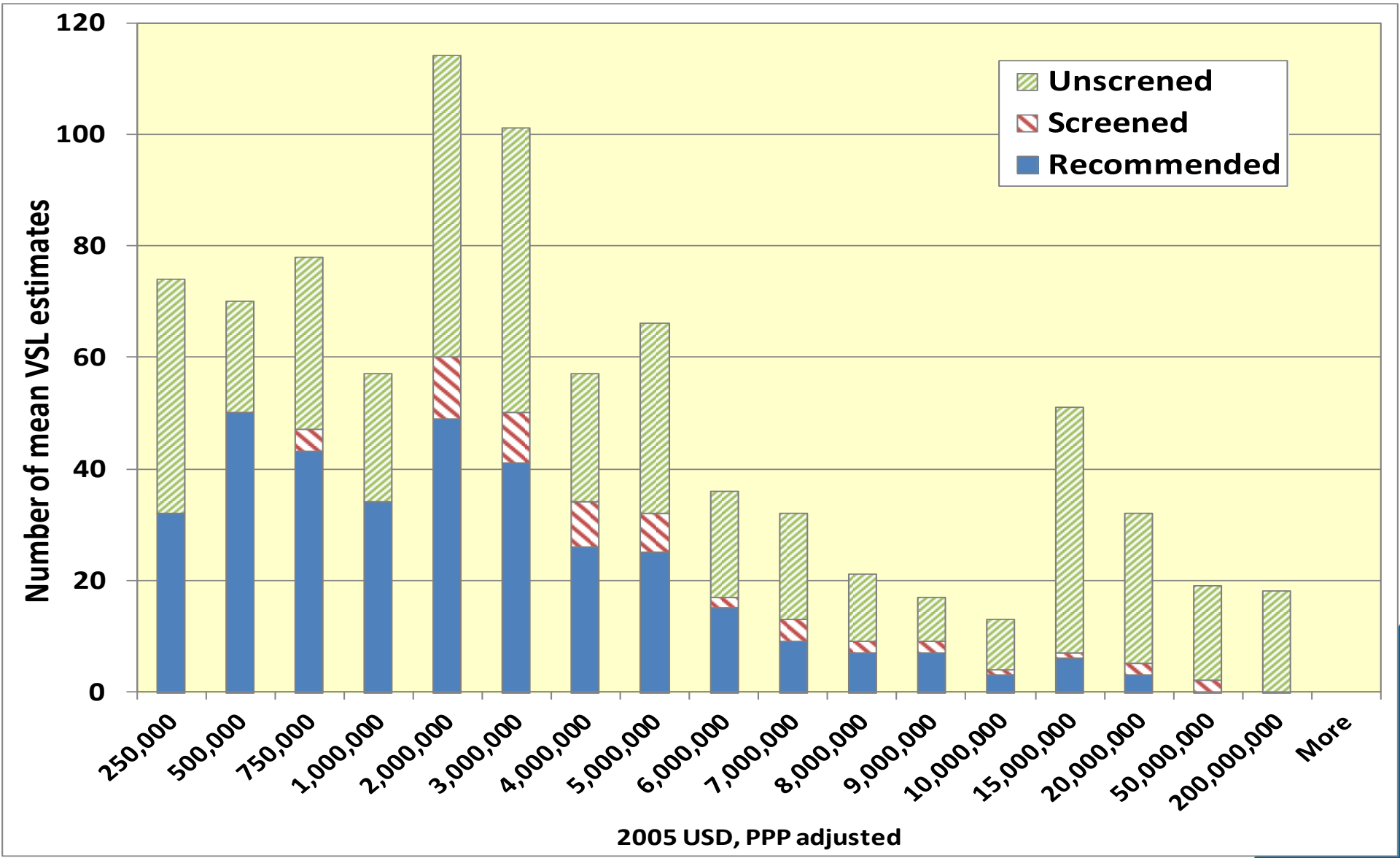
Estimates and surveys, by country



Screening of the VSL estimates

- In order to base the final analysis on ‘good quality’ VSL estimates – well suited as a basis for policy assessments, we excluded estimates that
  - Provided no information on the size of the risk change valued (231).
  - Came from surveys where the full sample was <200 persons, or was based on a sub-sample (*e.g.*, age group) of <100 persons (118).
  - Came from samples clearly not representative of the general population (e.g., only health personnel, or only students) (102).
  - The original authors (also) recommended that we should exclude (55).
- We also did separate regressions on estimates stemming from surveys that used a similar questionnaire, developed by Maureen Cropper, Alan Krupnick, Anna Alberini et al.

Impacts of the screening



Regressions on the recommended sample

	Model I	Model II	Model III	Model IV	Model V
lngdp	0.752***	0.823***	0.885***	0.832***	0.741***
	(0.206)	(0.190)	(0.186)	(0.185)	(0.192)
lnchrisk	-0.461***	-0.588***	-0.561***	-0.590***	-0.612***
	(0.101)	(0.120)	(0.111)	(0.0897)	(0.0909)
turnbull	-0.941	-0.305	-0.142	-0.00910	-0.129
	(0.826)	(0.626)	(0.632)	(0.649)	(0.671)
envir		-1.303***	-0.566*	-0.857**	-0.855**
		(0.374)	(0.306)	(0.367)	(0.345)
traffic		-0.533	-0.204	-0.230	-0.464*
		(0.333)	(0.327)	(0.287)	(0.246)
public			-0.879***	-0.744**	-0.684***
			(0.255)	(0.272)	(0.228)
household			-0.166	-0.150	-0.203
			(0.290)	(0.248)	(0.238)
cancerrisk				0.516	0.620*
				(0.332)	(0.326)
latent				-0.320	-0.272
				(0.385)	(0.371)
noexplan					0.746***
					(0.221)
Constant	2.923	1.511	1.154	1.358	1.950
	(2.441)	(2.290)	(2.255)	(2.271)	(2.360)
Estimates	350	350	350	350	350
R-squared	0.717	0.779	0.814	0.827	0.845
Root mean square error	0.905	0.803	0.739	0.714	0.677

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Base VSL values

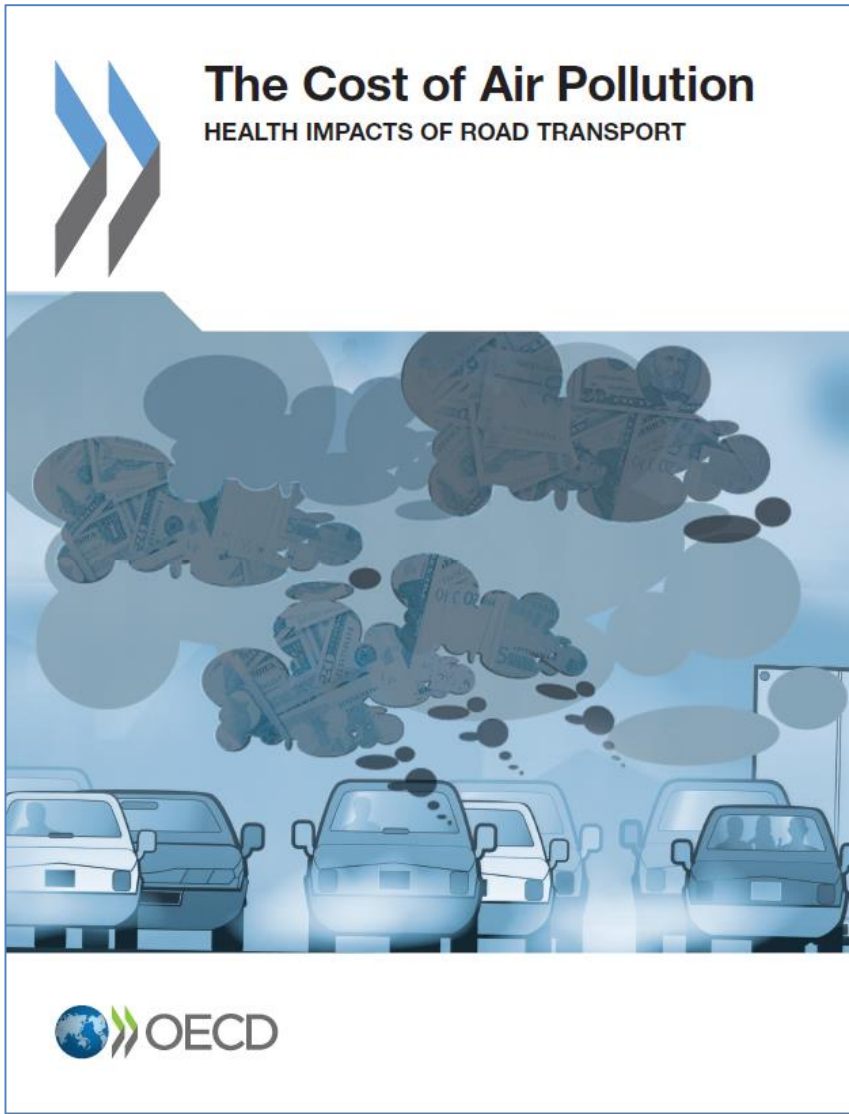
Million 2005-USD, PPP-adjusted

	Recommended sample	OECD countries (screened)
Mean VSL	2.8	4.0
(standard error)	(0.17)	(0.23)
Weighted mean VSL*	3.1	4.0
(standard error)	(0.26)	(2.9)
Median	1.7	3.0
Observations	350	261

*Weighted by the inverse of the number of observations from each SP survey.

OECD use of the meta-analysis

- In 2014, we used the formula stemming from the meta-analysis to prepare the book: *The Cost of Air Pollution: Health Impacts of Road Transport*.
- It combined country-specific VSL estimates with country-specific estimates of mortality caused by outdoor air pollution from the 2010 Global Burden of Disease survey.
- Outdoor air pollution cost OECD countries alone almost USD 1.6 trillion in 2010; China USD 1.3 trillion and India USD 0.5 trillion.



OECD use of the meta-analysis II

- In 2015: Indoor and outdoor air pollution in co-operation with WHO Europe Regional Office (using 2010 data)
- In 2016: Indoor and outdoor air pollution costs in Africa (using 2013 data)
- In 2017: Outdoor air pollution in OECD + BRIICS countries (using 2015 data).

2015 VSL estimates