

SEFIRA



SEFIRA IS A EU FP7 COORDINATION ACTION ON
Socio Economic Implications
For Individual Responses to
Air Pollution policies in EU +27



Supporting decision-making processes through the analysis of the acceptability of AQ policy: results from the SEFIRA FP7 project

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Why SEFIRA?

- ✓ Compliance with existing obligations in EU AQ Directives is still a problem in many Member States;
- ✓ Increasing evidences that technical measures will not be sufficient in achieving AQ standards;
- ✓ Behavioural-based measures are likely to play an increasingly important role.



The Transdisciplinary Approach

Qualitative methods



**12 Focus Groups
and 38 interviews**

with citizens,
experts and
policy makers

4 Areas

Malmö / Warsaw
/ Antwerp / Milan

Quantitative methods



7
countries



16 100
interviews

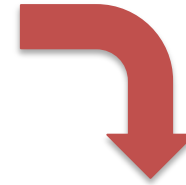


DCMs
to test their
preferences

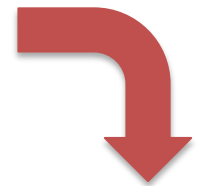




1. **Document review** to analyse the translation of policies from the European to the local scale



2. **Interview campaign** with experts, stakeholders and policy makers to identify implementation problems



3. **Focus groups** to explore awareness, experience and visions of citizens

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SEFIRA PILOT EXPERIMENT

- ✓ To understand the role of selected policy drivers (attributes) for the **acceptability** of environmental and air quality policies;
- ✓ To highlight **socio-economic differences** in eliciting policy preferences and acceptance.



WHY DISCRETE CHOICE ANALYSIS?

- ✓ The type of surveys used to inform policy making typically asks citizen beings to rate/choose items from a list. This normally yields no more information that respondents want all the benefits and refuse the costs.
- ✓ There is no information regarding the **trade-offs** between the considered items.
- ✓ **DCMs** focus on identifying the underlying **influences** on an individual's choice behaviour, estimating the attributes' trade-offs (e.g. efficiency vs. fairness; budget constraints vs. policy efficacy).

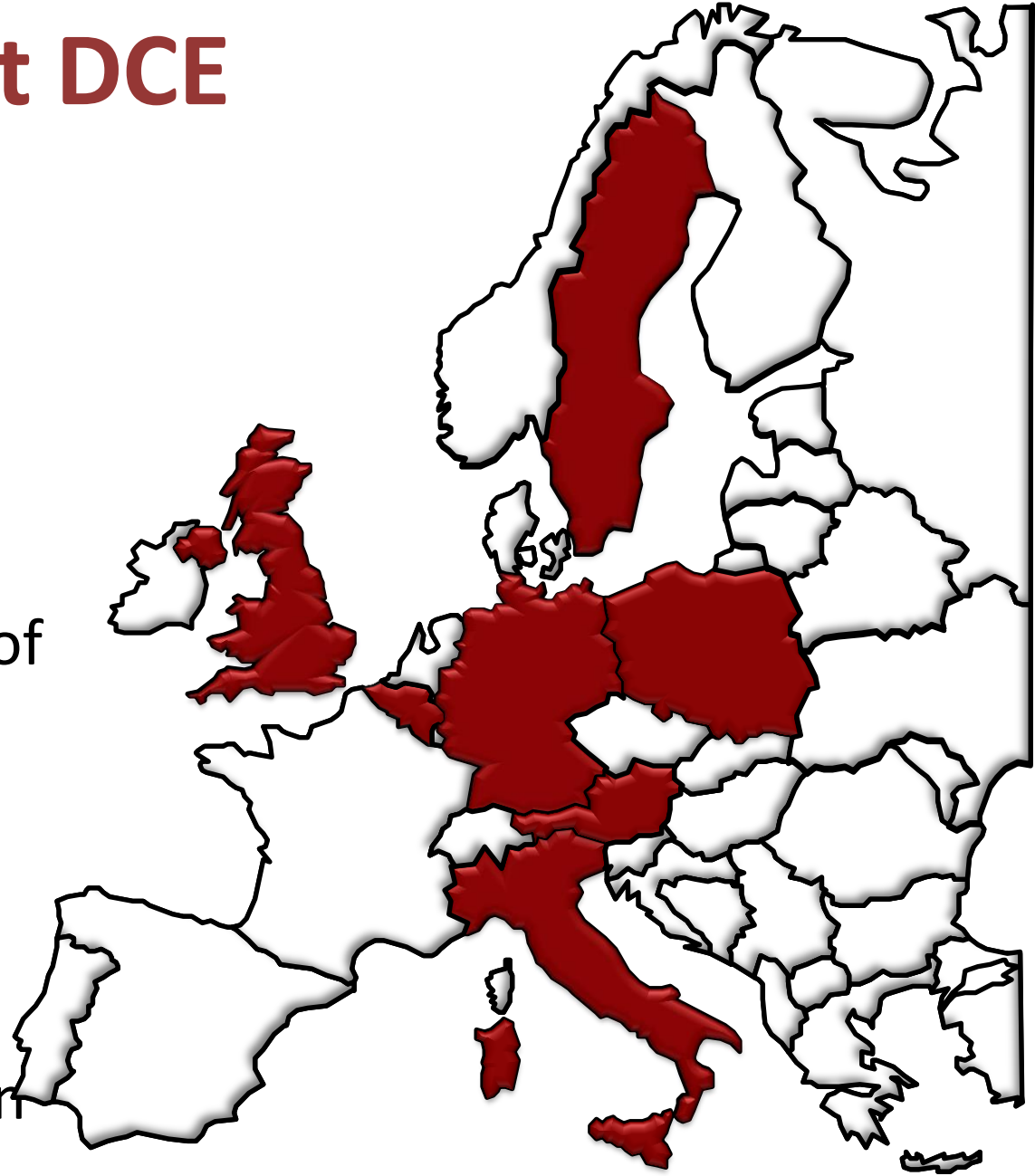


The SEFIRA pilot DCE

CAWI technique
(computer-assisted web
interviewing);

16.100 questionnaires
administered in **7** EU
countries.

Representative sample of
population 18+
(urban/rural crossed by
macro-regions, age,
gender) using
car/motorcycles and
consuming *meat* and/or
dairy products more than
4 days per month.



The SEFIRA Questionnaire



Part 1: Screening questions:

- Demographic info
- Mobility and eating habits

Part 2: The choice experiment



Part 3: Questions on environmental perception

Choice experiment description

Table – Characteristics of the experimental design

Drivers	1	2	3	4
Cost of the measure: the annual cost you will have to bear as a consequence of the implementation of the policy	No req.	10 €	25 €	50 €
Required changes in your mobility behaviour *: the decrease required in the use of polluting modes of transportation.	No req.	-25%	-50%	
Required changes in your eating habits *: the decrease required in the consumption of beef, pork, lamb and horse meat or of milk and dairy products.	No req.	-25%	-50%	
Reduction of premature deaths: the policy impact on the reduction of premature deaths caused by the presence of particulates and ozone.	-10%	-25%	-50%	
Distribution of measure costs: it indicates how the costs of the environmental measure must be distributed to the community.	Polluters pay more	The poor pay less		

Respondents have been asked to chose between two policies implying different mix of policy drivers' levels

Characteristics	Policy 1	Policy 2
Per capita annual cost	50 euros per year	25 euros per year
Reduction required in the use of polluting means of transport	No reduction required	10 days fewer per month
Reduction required in the consumption of beef, pork, lamb, horse meat or dairy products	5 days fewer per month	10 days fewer per month
Reduction of premature deaths	50,000 fewer premature deaths per year	125,000 fewer premature deaths per year
Distribution of policy costs	Those who pollute more, pay more	The poor pay less
Which policy do you prefer?	Policy 1 <input type="checkbox"/>	Policy 2 <input type="checkbox"/>
Can you please indicate which policy you would find acceptable?	<input type="checkbox"/> Yes, acceptable <input type="checkbox"/> No, not acceptable	<input type="checkbox"/> Yes, acceptable <input type="checkbox"/> No, not acceptable
Given your preferred policy, on the following scale, how certain are you that you would actually prefer this choice?	1 = very unsure ... 10 = very sure	

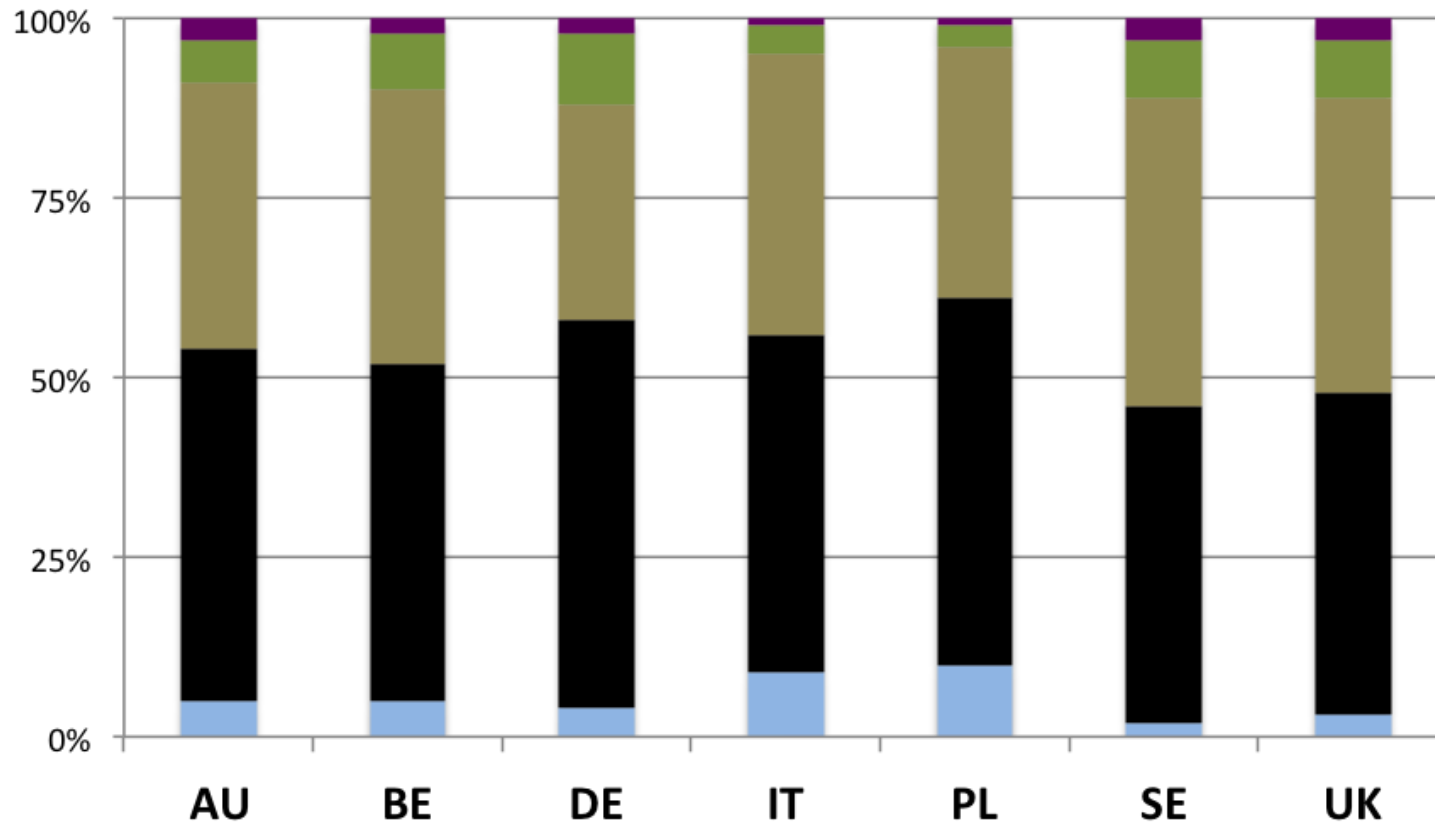
The choice is repeated for eight scenarios with different attribute levels

Environmental Perception

- ✓ Perceived impact of the various economic sectors on AQ
- ✓ Individuals awareness and perception of own responsibility
- ✓ Analysis suggests a delegation of responsibility



Citizens' perception of air pollutant sources

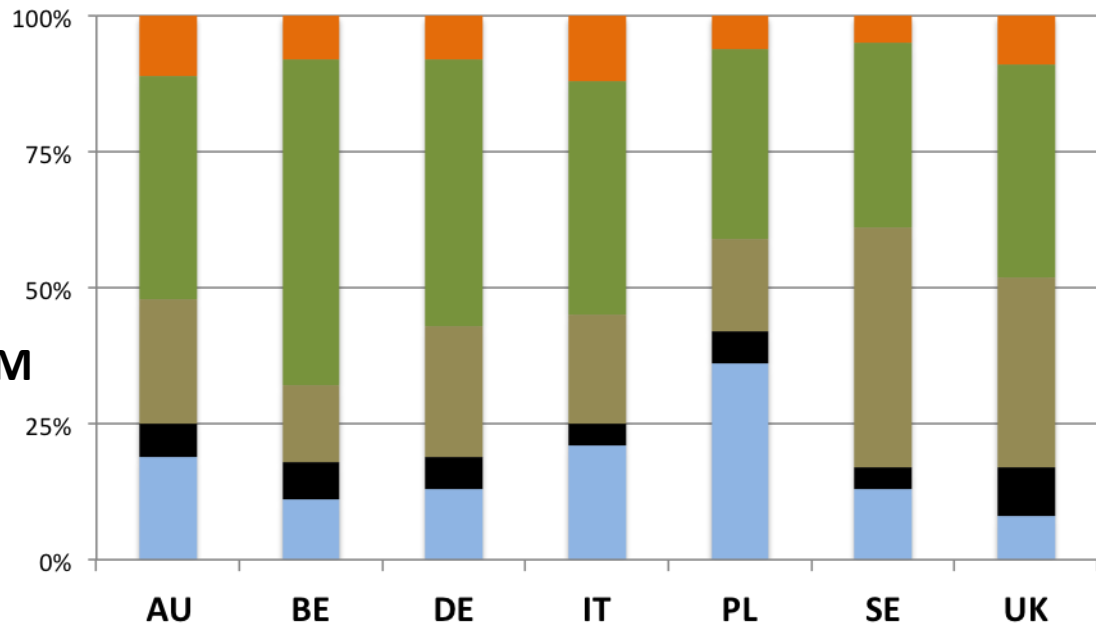


- Households ■
- Industry ■
- Traffic ■
- Agriculture ■
- Other ■



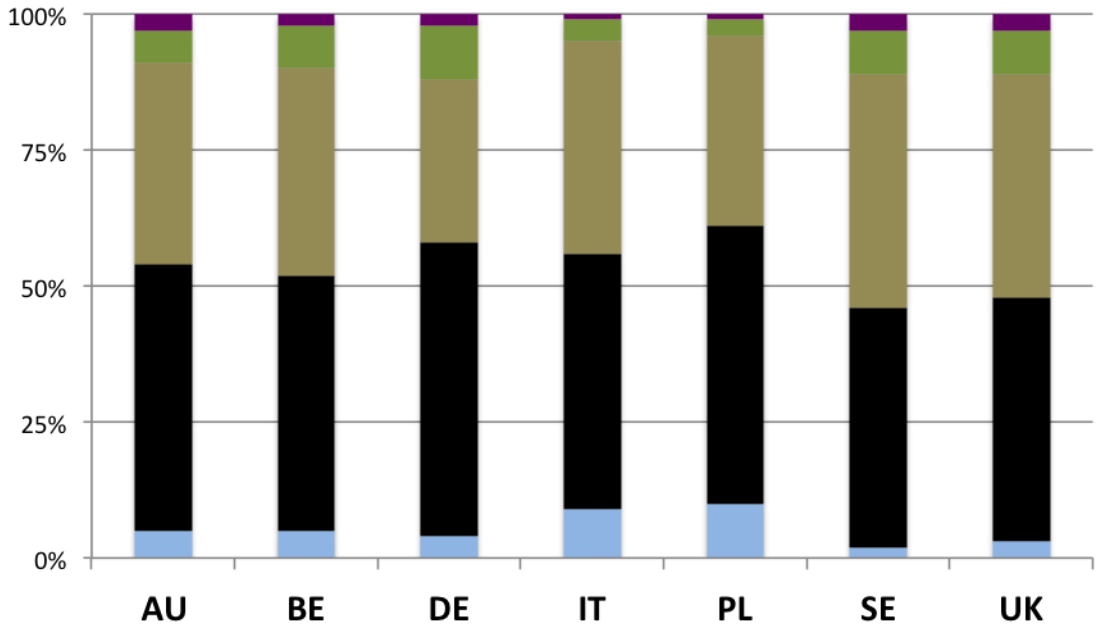
PM sources (IIASA TSAP report #12 2009)

- Households ■
- Industry ■
- Traffic (primary PM) ■
- Agriculture (secondary PM Agri and traffic+Agri and Industry) ■
- Natural ■



Citizens' perception of pollution sources (SEFIRA CAWI)

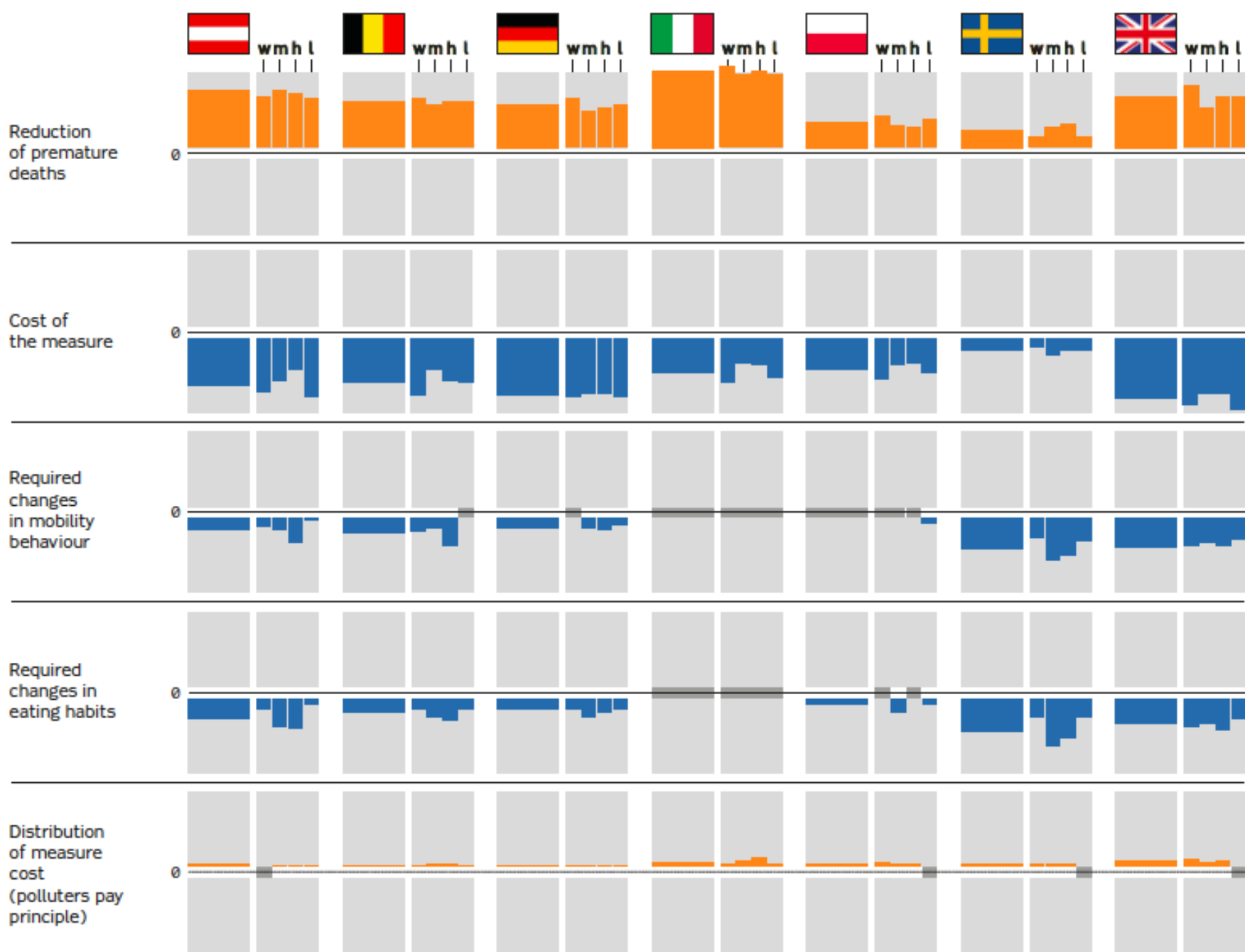
- Households ■
- Industry ■
- Traffic ■
- Agriculture ■
- Other ■



DCM EMPIRICAL RESULTS

Can be expressed as “elasticity”, i.e. Individuals’ sensitivity to policy drivers’ changes and as the relative acceptable burden individual’s would take in order not to change their behaviour





MODELLING INDIVIDUAL PREFERENCES FOR ENVIRONMENTAL POLICY DRIVERS: EMPIRICAL EVIDENCE OF ITALIAN LIFESTYLE CHANGES USING A LATENT CLASS APPROACH.

Valeri et al, *in press Environmental Science & Policy*.

CLASS I - 43%	CLASS II - 29%	CLASS III - 28%
Cost sensitive respondents: high and negative impact of the measure cost and the 'poor people pay less' principle.	Lifestyle change sensitive respondents: habits' changes negatively impacting on the personal utility	Lifestyle change sensitive respondents: translate the potential changes in their habits as environmental and health benefits.
Younger than 34, income <15,000 €/yr, low education level, negative environmental sensitivity	Mixed characteristics	Older than 34, income >15,000 €/yr, high education level, positive environmental sensitivity

Baseline policy:

- yearly cost **€10**
- results in **50,000 fewer** premature deaths
- adopts the '**poor pay less**' principle
- does not entail **any change** in mobility and eating habits.
- **choice probability 43%.**





Setting Potential Scenarios

To simulate a policy, choose an option provided in each blue and green box:

Policy Drivers:	Baseline Policy	Policy 1	Policy 2	....
Measure cost: ----->	No cost required			....
Mobility habits: ----->				....
Eating habits: ----->	Measure cost: Select a option between:			....
Premature deaths: ----->				....
"Poor pay less" vs. "Polluters pay more" principle: ----->				....



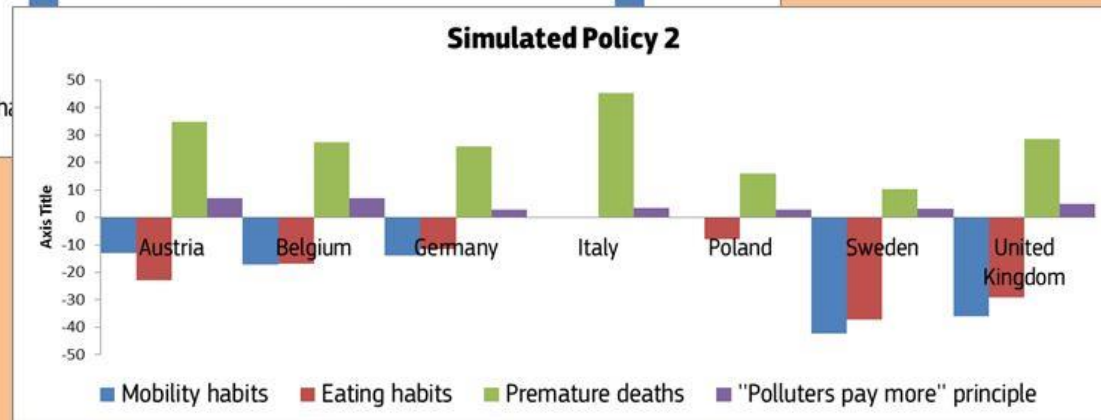
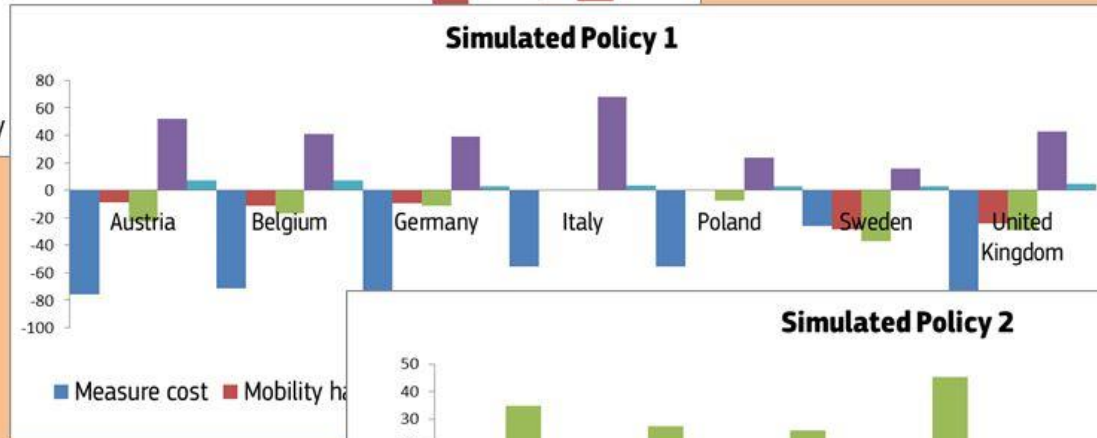
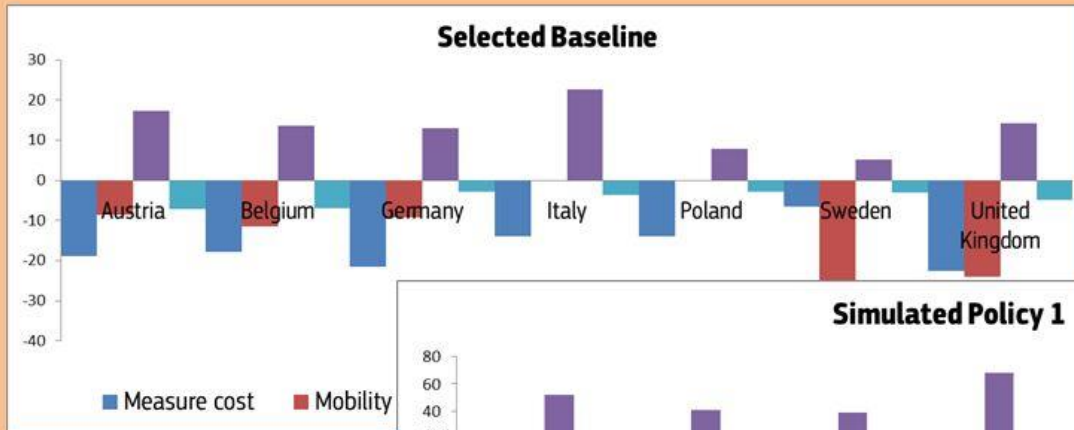
Setting Potential Scenarios

To simulate a policy, choose an option provided in each blue and green box:

Policy Drivers:		Baseline Policy	Policy 1	Policy 2	....
Measure cost:	----->	10 Euro per year	50 Euro per year	No cost required	....
Mobility habits:	----->	-25% of days fewer per month	-25% of days fewer per month	-50% of days fewer per month	....
Eating habits:	----->	No reduction required	-50% of days fewer per month	-50% of days fewer per month	....
Premature deaths:	----->	50,000 fewer premature deaths per year	250,000 fewer premature deaths per year	125,000 fewer premature deaths per year	....
"Poor pay less" vs. "Polluters pay more" principle:	----->	"Poor pay less" principle	"Polluters pay more" principle	"Polluters pay more" principle	....

Decision Support System for Air Quality Policy Assessment

Results of Simulated Scenarios



SEFIRA

Socio Economic implications For Individual
Responses to Air pollution policies in EU+27

EU FP7 Coordinated action

Start date June 2013, duration 36 months

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