

SEFIRA



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



Behavioural Change in IAM: the SEFIRA Project

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

EU FP7 Coordinated action

www.sefira-project.eu

Start date June 2013, duration 36 months



Clean Air Package for Europe (Dec 2013)

- ‘Broadening the local and regional air quality management toolbox’ in order to achieve compliance with the existing obligations on ambient AQ in Directive 2008/50/EC;
- Substantial scope for enhanced **national** and **local** action;
- Member States to put into place local measures, likely to be **‘non-technical’**.



- ◎ **Acceptability** is crucial for the implementation and effectiveness of policies.
- ◎ There are different **drivers** affecting the individual acceptability of policies:
 - ◎ Problem perception, social norms, knowledge about options, perceived effectiveness and efficiency, equity and fairness, socio-economic and system characteristics, etc.
- ◎ It is important to understand the existing **links** among acceptability drivers and policies, but also the **trade-offs**



...the **cost-benefit** analysis, although a valuable tool, is of limited value in assessing the wider acceptability of policies, particularly in relation to the impact on individual behaviour.



The example of the EUROBAROMETER



- Implemented by the EC to monitor the evolution of public opinion in the Member States, thus helping the preparation of texts, decision-making and the evaluation of its work.
- Addresses major topics concerning European citizenship: enlargement, social situation, health, culture, information technology, **environment**, the Euro, defence, etc.



Relationship between AQ and CC perception in Europe: SEFIRA analysis of Eurobarometer data 2011 wave 75.2 (*Sergi et al., 2015*)

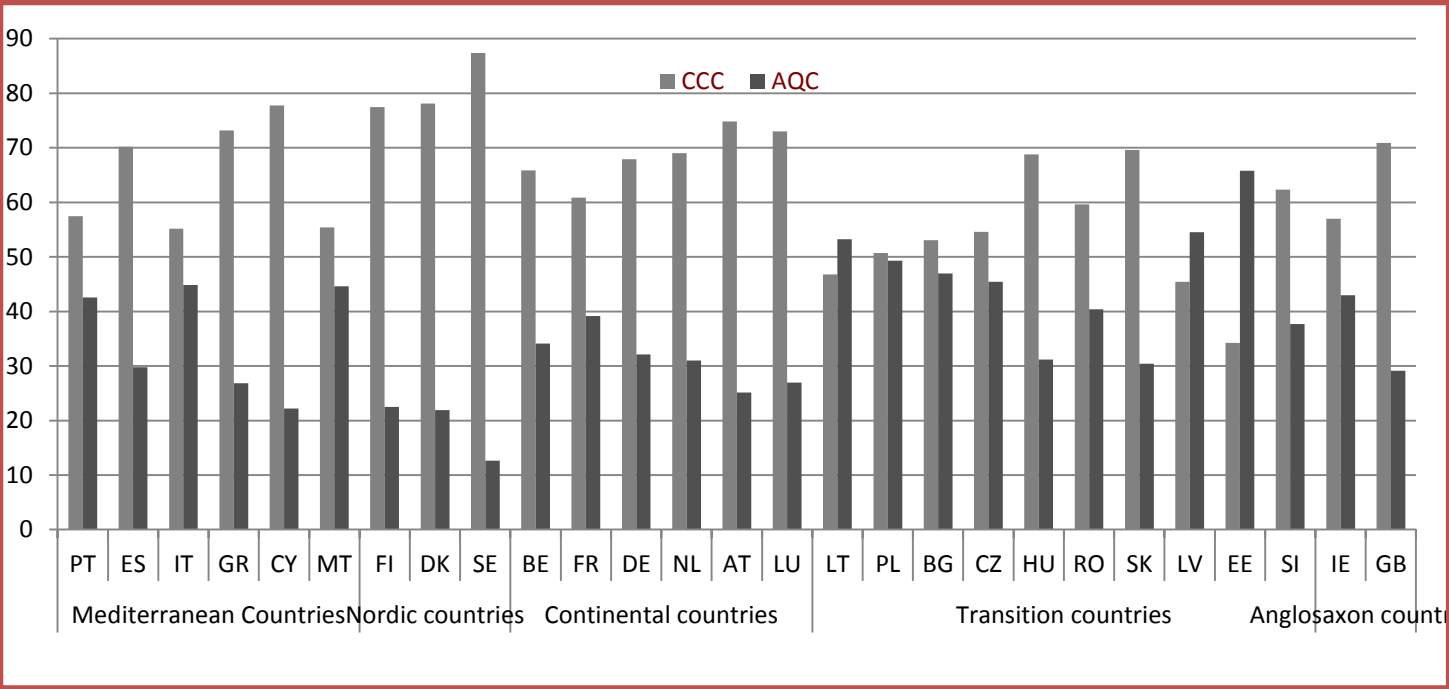
- Growing scientific consensus on the need of integrating AQ and CC policies as a win-win option;
- Exploring public perceptions and attitudes to these environmental challenges represents a basic starting point in order to plan strategies for fine tuned policy intervention and communicative efforts.

AQ and CC concerned (AQC and CCC)

The most quoted concern in 2011 was man-made-disaster followed by water pollution.

		AQ	
		Not Concerned	Concerned
CC	Not Concerned	43.5%	16.7%
	Concerned	31.1%	8.7%

n = 26,825; Phi = -0.066; p = 0.000



Comparing concerns in EU countries (%) of the 47.8% respondents corresponding to the sum of two mutually exclusive groups: those concerned either of CC (31.1%) or AQ (16.7%).

Countries clustered according to Esping-Andersen welfare regimes

AQC and CCC have been compared along six dimension of social acceptability converted into six indicators

Acceptability driver	Indicators
1. Environmental sensibility and interest	Environmental Sensibility
2. Behaviour	Environmental commitment
3. Estimated efficacy	Judgement on efficacy for environmental resource management
4. Equity and fairness	Attributed Environmental Responsibility
5. Socio-economic status in society	Self-placement on the societal scale
6. Level of Knowledge	Self-perceived level of information about the environment

- The two group **CCC** (Climate Change Concerned) and **AQC** (Air Quality Concerned) have been compared along the six dimensions of social acceptability for environmental policies;
- **CCCs** have a higher general environmental sensitivity and environmental commitment, even though the level of commitment is generally low → few environmental friendly actions (e.g. reduce car use, energy or water consumption control) are undertaken;
- Both groups share the same negative judgement on the efficacy of environmental resource management;
- The **AQCs** tend to attribute more responsibility to big polluters → delegation of responsibilities to the political and regulatory authorities;
- However, the highest is the sensibility the highest is the tendency to consider individuals as responsible for environmental problems;
- Differences linked to other social markers as age and level of education emerged.

DISCRETE CHOICE ANALYSIS

- ◎ **Discrete Choice Models** 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).
- ◎ For environmental policies requiring **people's willingness to change** their behaviour, the role of policy acceptability is particularly relevant (e.g. it is the individual who decide to change the own heating system).
- ◎ **Discrete Choice Experiments** are used to understand the role of selected acceptability attributes/drivers of policies concerning air quality.



How choice experiments work

In a DCE survey, respondents are asked to:

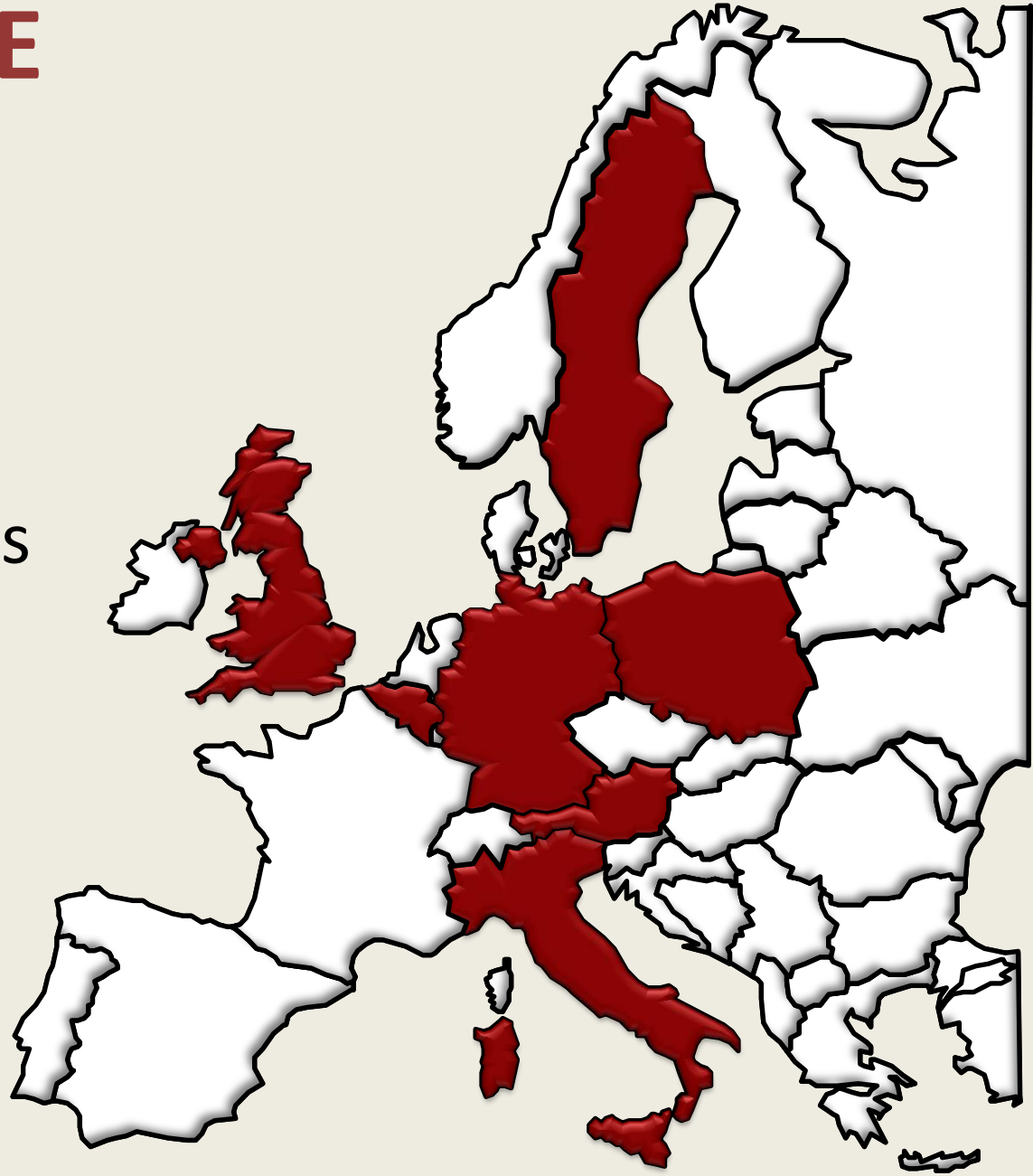
- **Choose** among at least two **alternatives**, that alternative with the highest utility. In our case, the alternatives are two air quality policies that are characterized by a short list of **attributes**, each having different **attribute levels**.
- **Repeat the choice** for several scenarios/choice experiments (with different attribute levels).



The SEFIRA DCE

CAWI technique
(computer-assisted
web interviewing);

16100 questionnaires
administered in **7** EU
countries.



The SEFIRA Questionnaire



Part 1: Screening questions:

- Demographic info
- Mobility and eating habits

Part 2: The choice experiment



Part 3: Questions on environmental perception



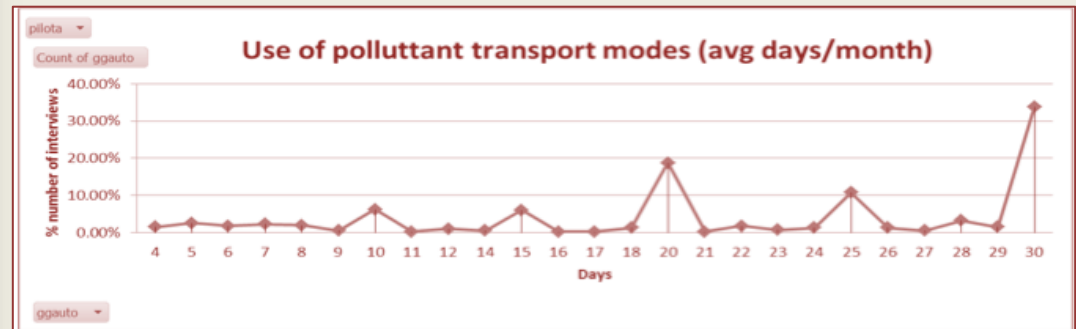
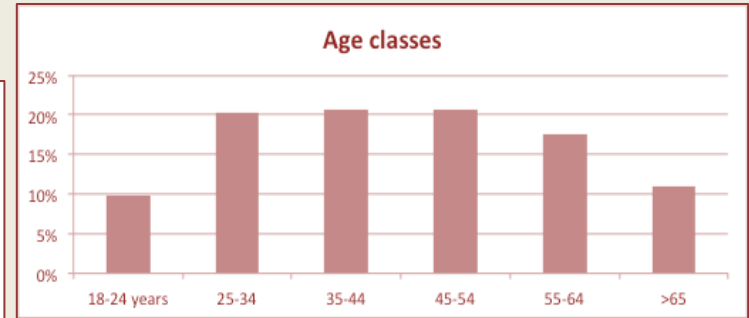
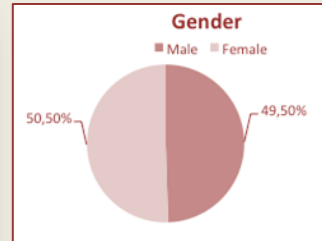
Characteristics	Policy 1	Policy 2
Per capita annual cost	50 euros per year	25 euros per year
Reduction required in the use of polluting means of transport	No reduction required	10 days fewer per month
Reduction required in the consumption of beef, pork, lamb, horse meat or dairy products	5 days fewer 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 several scenarios with different attribute levels

The attributes and levels of attribute

	Level 1	Level 2	Level 3	Level 4
Per capita annual cost	€ no individual cost	€ 10	€ 25	€50
Decrease required in the use of car/motorcycle	No changes	25% less	50% less	
Decrease required in the consumption of red meat and/or dairy products	No changes	25% less	50% less	
Reduction of premature deaths	10% less	20% less	50% less	
Reduction of the PM 2.5 Level	-50%	-100%		
Temporal horizon of the policy	1 year	5 years	15 years	
Distribution of the cost of the policy	Who pollutes more pays more	Poor people pay less		

The Pilot DCE: To test the DCE structure, 400 CAWI interviews administered in December 2014 to a sub-sample of 400 respondents in Italy.



- The econometric analysis of the test data has highlighted the high weight of the following attributes:
 - Cost of the measure
 - Reduction in the use of polluting means of transport
- However, since completely new attributes (not tested yet in the DCE literature) have been used, further confirmation is needed, also based on the results of the large test;
- The respondents declared that they did NOT take into account the following attributes (Multiple choice):

– Per capita annual cost of the environmental policy	12.0%
– Required changes in your mobility behaviour	12.5%
– Required changes in your eating habits	14.5%
– Reduction of premature deaths	9.0%
– Distribution of policy costs	14.0%
– I took all attributes into account	63.5%

In your opinion, which of the following definitions best describes a FAIR environmental policy? (single choice)

A policy that respects the will and the choices of citizens	21.5%
A policy that takes into account next generations' welfare	29.0%
A policy that does not damage the more vulnerable social groups	10.0%
A policy that does not damage only some areas of a Country	2.5%
A policy reducing inequalities among countries	4.5%
A policy whose cost is equally distributed among the citizens	4.0%
A policy whose cost is higher for high income citizens	14.5%
A policy whose cost is distributed according to the level of pollution produced	14.0%

In your opinion, which of the following contributes to atmospheric pollution the most? (maximum 2 answers)

Agriculture	5.5%
Industry	74.0%
Transport	59.5%
Domestic heating	14.5%
Urban waste	22.5%
Others	1.0%

What is your level of confidence that the following institutions will be able to improve air quality?

	EU	National governments	Local admin
High	14%	2%	5%
Fair	40%	24%	32%
Low	33%	39%	37%
Very low	13%	35%	26%

Conclusions

- © Individual acceptability of an environmental policy should be considered in choosing which policies should be implemented;
- © Integration with Integrated Assessment Models is a promising opportunity to help local and national decision making process.

Thank you!



Acceptance vs Acceptability

- Acceptability is crucial for a successful introduction and operation of policies;
- Acceptance is the respondents attitudes including their behavioural reactions after the introduction of a measure
- Acceptability is the prospective judgment of measures to be introduced in the future is mainly related to specific measures or regulatory schemes

Schade and Schlag, 2003

