Do Air Quality Policies and Individual Attitudes Meet? Four European Metropolitan Areas for a Comparative Exploration

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1. Air pollution is a growing concern for EU citizens

2. Our pilot study is based on four metropolitan areas over 9200 CAWI respondents and 38 experts in four countries

3. Air quality policies implementation appears to be limited by double delegation and asymmetries

4. Data show mismatch between policies and individual attitudes
## Air pollution became a major environmental concern in EU

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<tr>
<th></th>
<th>2004</th>
<th>2014</th>
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<tbody>
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<td></td>
<td>BE</td>
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<tr>
<td>1</td>
<td>MAN MADE DISASTERS</td>
<td>AIR POLLUTION</td>
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<td>2</td>
<td>WATER POLLUTION</td>
<td>MAN MADE DISASTERS</td>
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<td>3</td>
<td>AIR POLLUTION</td>
<td>CLIMATE CHANGE</td>
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<td>4</td>
<td>CLIMATE CHANGE</td>
<td>WATER POLLUTION</td>
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<td>5</td>
<td>CHEMICALS IN PRODUCTION</td>
<td>NATURAL DISASTERS</td>
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<td>NATURAL RESOURCES</td>
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Source: Eurobarometer surveys 2011 and 2014
Air pollution is a growing concern for EU citizens

Trend for air pollution concern according to Eurobarometer ten years coverage for Belgium, Italy, Poland and Sweden (Percentage values of answers, n=16079)

Comparison between resonance metrics across time on Facebook (average values)

Source: own calculation on EB waves 62.1, 68.2, 75.2, 81.3

Source: Own calculation on Google News and Netvizz
Research questions

• How are the relationships between air pollution policies and individual behaviour configured?

• What are the intervening factors explaining cross-national differences?
Case description: Environmental Performance Index

Research took into consideration four EU members states to be compared: Belgium, Italy, Poland, Sweden

<table>
<thead>
<tr>
<th>EPI 1</th>
<th>Population weighted exposure to PM$_{2.5}$ (three-year average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>72.29</td>
<td>42.09</td>
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<th>EPI 2</th>
<th>Proportion of the population whose exposure is above WHO thresholds (10, 15, 25, 35 micrograms/m$^3$)</th>
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<tbody>
<tr>
<td>100</td>
<td>96.4</td>
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100 over the EPI scale is the best score while 0 marks the worst pollution.
Comparative research, mixed methods research design

CAWI technique (computer-assisted web interviewing)

9,200 questionnaires administered in 4 EU countries

38 semi-structured interviews to policy makers and experts

Comparative dimension of policies:
- Individual cost
- Cost distribution (Equity/Fairness)
- Habits (Eating and mobility)
Case description: the regions and metropolitan areas

Metropolitan areas studied on a NO$_2$ pollution map of Europe (Envisat 2004)

<table>
<thead>
<tr>
<th>Region</th>
<th>City</th>
<th>Inhabitants</th>
<th>PM$_{2.5}$ yearly average value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Province of Antwerp</td>
<td>Antwerp</td>
<td>502,604</td>
<td>20 μg/m$^3$</td>
</tr>
<tr>
<td>Skane</td>
<td>Malmö</td>
<td>315,076</td>
<td>8 μg/m$^3$</td>
</tr>
<tr>
<td>Lombardy</td>
<td>Milan</td>
<td>1,322,750</td>
<td>33 μg/m$^3$</td>
</tr>
<tr>
<td>Mazovia</td>
<td>Warsaw</td>
<td>1,726,581</td>
<td>26 μg/m$^3$</td>
</tr>
</tbody>
</table>
The scenario: Air quality policies implementation in the EU

Central EU level delegate to member states the implementation of policy interventions; national governments delegates to region or even to cities the responsibility to set up **air quality plans**

The double delegation generates a **variety in the implemented solutions** among EU members states, and even between the regions and cities of each country.

22 document and 431 policy measures studied in four countries
Institutional representation of citizens’ attitudes

Institutions say:

Institutions say: Those company cars, that is obviously the biggest absurdity. Abolish them. Of course, the minister of environment doesn’t have much to say about this. But I know such people: they just jump in their car, it doesn’t cost them anything.

BE_10, Male, Regional Public Servant

Because we Bll face difficulties to put things on the agenda, or to ask people to change their behaviour. You also ask people: change your behaviour, leave your car at home, but this step is not being taken.

[…]

Yes, the idea ‘me not’, the others have to… That has stayed, I think this is the case with a large part of environmental policies

BE_03, Female, Regional Policy maker

Well, I do not think people in general understand the reasons… or environmental things, so… But I do think it’s a good idea to do it but I think it is a hard thing to do because the interest or understanding is not so high.

SE_09, male, Malmö, policy maker

People do not always accept, because of the costs. Everything is expensive and it is also a cost to the society. Changing heating methods usually entails using more expensive fuels. And so education is a key to success here. But people not always and not everywhere are aware of how important air quality is to their own health.

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PL01, Female, National Policy Maker
Mismatch between experts and citizens perception

Comparison between perception data (n=16001) and recorded emission of PM$_{10}$ per source (normalised data)

Differences between perception of the transportation impact may highlight different car-use cultures

Despite real monitoring data, industry still represents the most polluting activity in widespread social representations

Elaborated from SEFIRA, 2015 CAWI-Survey and PM$_{10}$ Source Apportionment IIASA TSAP report #12, 200
Habits have more impact on attitudes than costs - Regions

Which attributes did you take into account in the choice exercise you have just completed?

**Distribution of costs** scores low in the Province of Antwerp and in Lombardy. Conversely, the Swedes have a higher consideration for cost.

**Individual costs** are more important for everyone but especially the residents of Lombardy consider that attribute.
Habits have more impact on attitudes than costs - Cities

Which attributes did you take into account in the choice exercise you have just completed?

The trend recorded for the three attributes is pretty much the same. Also in this case, **habits** attribute is the most considered.

**Distribution of costs** declines sensibly as well as the attribute of the **individual costs**.
Respondents concerned by changing their habits (mobility and eating) for air quality policies. Split per country and gender (n=7007, $X^2=8.271$ $p=0.041$)

In this case gender difference appears to play no major role in the sensitivity of respondents to habits change.
Respondents concerned by changing their habits (mobility and eating) for air quality policies. Split per country and income classes. Percentage values (n=5906, $X^2=1004.373$ p=0.000)

How the differences between income classes do influence the willingness to change habits?

Between the same income class which are the more influent factors?

Work life balance and place of residence may be relevant?

Time management can be relevant on travel choices or status and cultural factors are more important?
Conclusions

Data analysis

- **Daily life habits** are more relevant than parameters of cost and its distribution for public acceptability of air quality policies.
- A consistent **mismatch** between **policy makers** representation and **citizens’ attitudes** is emerging from our data.
- Daily life habits are a **good proxy** for disclosing factors that influence attitudes and to estimate the acceptability of policies.

Methodological Proposal

- Inquiring about **realistic policies** may complement environmental attitudes scales and may contribute to **reduce social desirability effects**.