HOW TO DISCOVER THE TRUE VALUE OF NON-MARKET PUBLIC GOODS?

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Non-market public goods

- Goods not sold in the market
- Examples:
  - Clean air
  - Hiking trails in a national park
  - Public playground for children
- No market price → no indication of the value of the good
- What may we need the value of non-market goods for?
  - Estimation of benefits from public policy projects
  - Necessary for cost-benefit analyses
  - Measurement of losses from natural damages needed in litigation processes (e.g., BP oil spill)

How to discover the value of non-market public goods?

Revealed preference methods

- use information on actual behavior (e.g., visits to a recreational site)

Stated preference methods

- use surveys specifically designed to elicit information about preferences

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	Alternative A	Alternative B (continuation of the current policy)
Entertainment theaters	No change	No change
Drama repertory theaters	Tickets for 5 PLN	No change
Children's theaters	No change	No change
Experimental theaters	Tickets for 5 PLN	No change
Annual cost for You	100 PLN	0 PLN
Your choice	□	□

Source: Our article in the *Journal of Economic Behavior and Organization* 142 (2017), p. 53

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+ go beyond existing data (hypothetical states)

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Some skepticism whether survey responses reflect true preferences:

- Possible hypothetical bias
- Lack of economic incentives to answer survey questions truthfully
- Elicitation effects and strategic voting
- Behavioural "anomalies" (e.g., attribute nonattendance, protest responses)

How to discover the **true** value of non-market public goods?

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Incentive compatibility = Revealing true preferences is the respondent's best strategy

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Necessary conditions for incentive compatibility (Carson and Groves 2007):

1. The survey is perceived as consequential:
   Respondents believe their responses will affect the finally undertaken solution.
2. The authority can enforce the payment (coercive payment).
3. The survey involves a yes-no answer on a single project.

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Theory versus Empirics

STUDY 1

Consequentiality in field surveys

- Communicated via scripts: The results of this survey will be shared with policy makers to help inform public decision making.
- Measured via a follow-up question: Do you believe the results of this survey will affect the final decision about …? (Definitely yes – Definitely no)

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- Measured via a follow-up question: Do you believe the results of this survey will affect the final decision about …? (Definitely yes – Definitely no)
- Our study involves both ways of controlling for consequentiality:
  - Four treatments varying the script emphasis on the survey consequentiality
  - Elicitation of perceived consequentiality at the end of the survey

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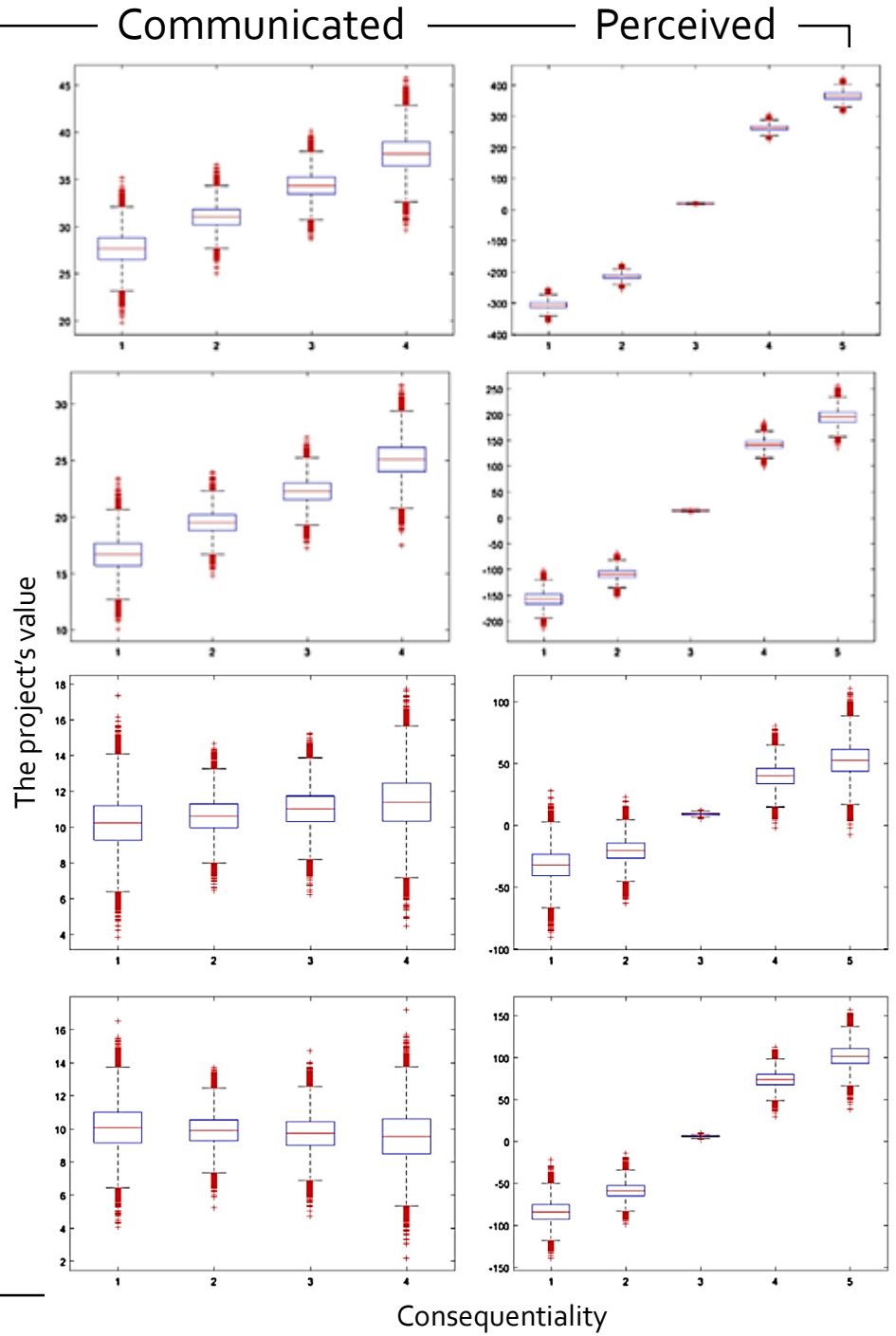
12 choice tasks per person;
online (CAWI);
1,700 citizens of Warsaw

STUDY 1

Communicated and perceived consequentiality

- Perceived consequentiality significantly affects stated preferences
- Communicated consequentiality impacts stated preferences, though much weaker
- The consequentiality script barely influences consequentiality perceptions



STUDY 2

Policy and payment consequentiality

- "Consequentiality describes a condition in which an individual faces or perceives a non-zero probability that
  - their responses will influence decisions related to the outcome in question
  - and they will be required to pay for that outcome if it is implemented."

(*Contemporary Guidance for Stated Preference Studies*, Johnston et al. 2017)

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- But perceptions of consequentiality are typically assessed on the basis of a single, general question

- We, instead, measure the perceptions towards the two aspects of consequentiality

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Policy and payment consequentiality

- 6 choice tasks per person; in-person (CAPI); 800 Polish citizens
- Public-good scenario: Development of renewable energy sites

	Wind energy	**Biomass energy**	**Solar energy**	**It does not matter to me**
Distance of a site from residential areas	600 m	2500 m	300 m	900 m
Size of a site	Large (35-50 turbines)	Large (15-25 tanks)	Small (0.5-5 hectares)	Medium
Number of sites	4	5	5	3
Share of the area protected from renewable energy expansion	20%	50%	10%	30%
Energy transmission lines	Underground	Underground	Overhead	Overhead
Change in the electricity bill per month (per year)	+30 PLN (+360 PLN)	-10 PLN (-120 PLN)	+30 PLN (+360 PLN)	0 PLN
My choice	□	□	□	□

STUDY 2

Policy and payment consequentiality

- Distinctive effects of policy and payment consequentiality
- Consequentiality enhances preference towards the project (rather than the status quo), with the effect being stronger for policy consequentiality
- Policy consequentiality lowers cost sensitivity, while payment consequentiality increases it

STUDY 3

Alternative preference elicitation formats

- Empirical literature abundant with evidence on elicitation effects: Different formats often yield different value estimates
- A lab experiment with evaluation of an actual environmental good (tree planting)
- Four formats examined: single binary choice, double binary choice, payment card, open-ended
- All formats implemented as incentive compatible
- No elicitation effects found

Closing thoughts on incentive compatibility

- New hope for advancing stated preference methods
- Improvement of data quality and reliability of non-market value estimates
- Broader application of the methods for policy purposes
- Importance of further development, given no other methods for assessing passive-use values
- Some remaining issues, potentially solvable by future research, e.g.:
  - Difficulties with measurement of consequentiality perceptions
  - Possible behavioural causes of elicitation effects in field surveys

HOW TO DISCOVER THE TRUE VALUE OF NON-MARKET PUBLIC GOODS?

By using incentive compatible tools

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