

Reference point adaptation and air quality – experimental evidence with anti-PM 2.5 facemasks from China

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1. Introduction

The adaptation of reference points is an important part of the Prospect Theory. However, we know very little about it. Most studies focus on the reference points adaptation regarding income, while few have focused on environmental goods.

2. Experiment design

- Becker–DeGroot–Marschak auction (BDM auction) trading with PM 2.5 mask filters;
- Between-subjects;



- Three treatments: 2*2*2

- before/after heavy air pollution; b) with/without damage information; c) sellers/buyers

	Without damage information	With damage information
Before heavy air pollution	Section 1 (WTP/WTA)	Section 2 (WTP/WTA)
After heavy air pollution	Section 3 (WTP/WTA)	Section 4 (WTP/WTA)

- Using the different biddings between treatments to identify the reference points adaptation.

4. Contribution

- The first study on the reference points adaptation on environmental good.
- Has important implications in valuation: context matters.

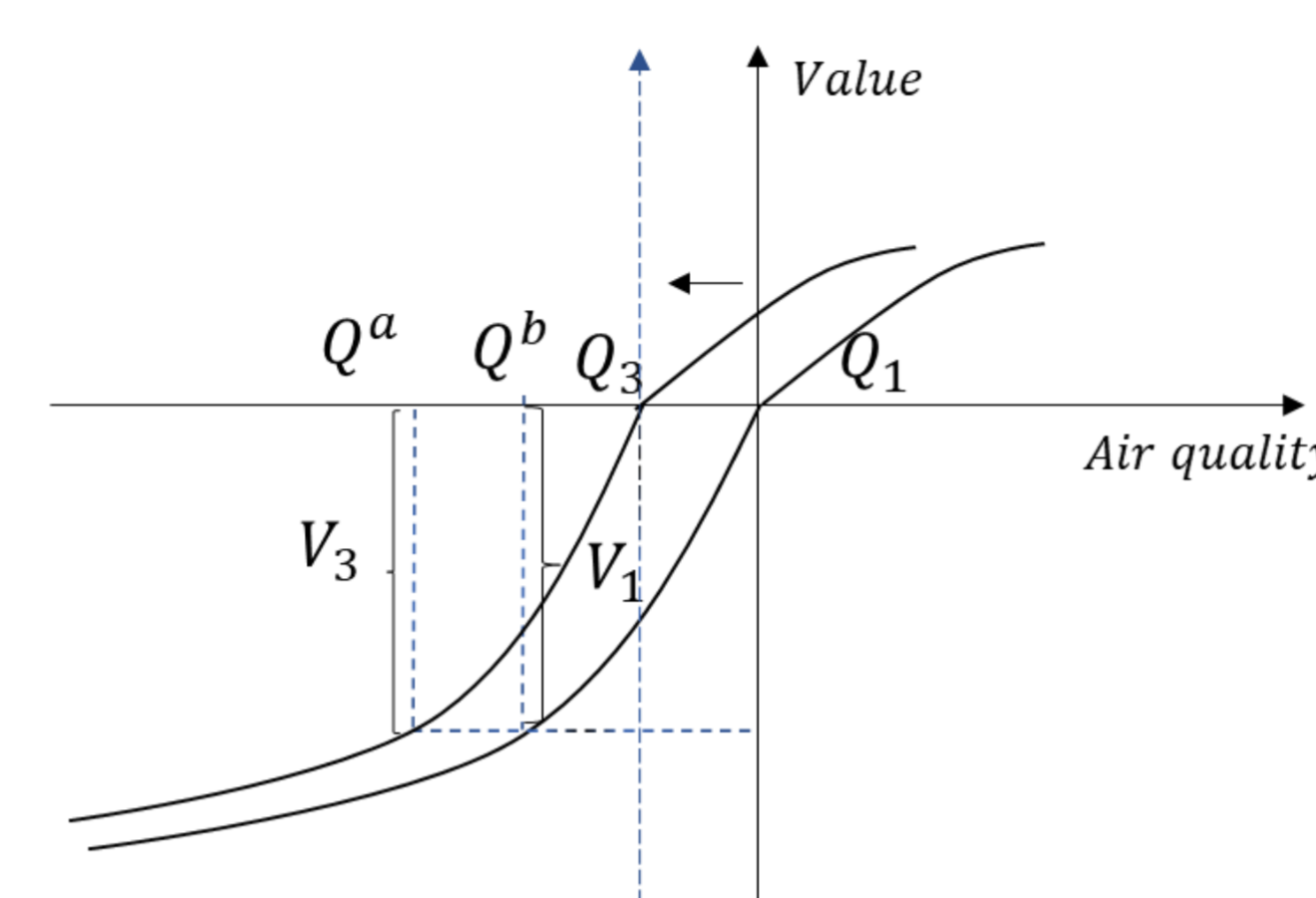
6. Reference

- Kahneman, D. and Tversky, A., 1979. Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), pp.263-291.
- Arkes, H.R., Hirshleifer, D., Jiang, D., and Lim, S., 2008. Reference point adaptation: Tests in the domain of security trading. *Organizational Behavior and Human Decision Processes*, 105(1), pp.67-81.

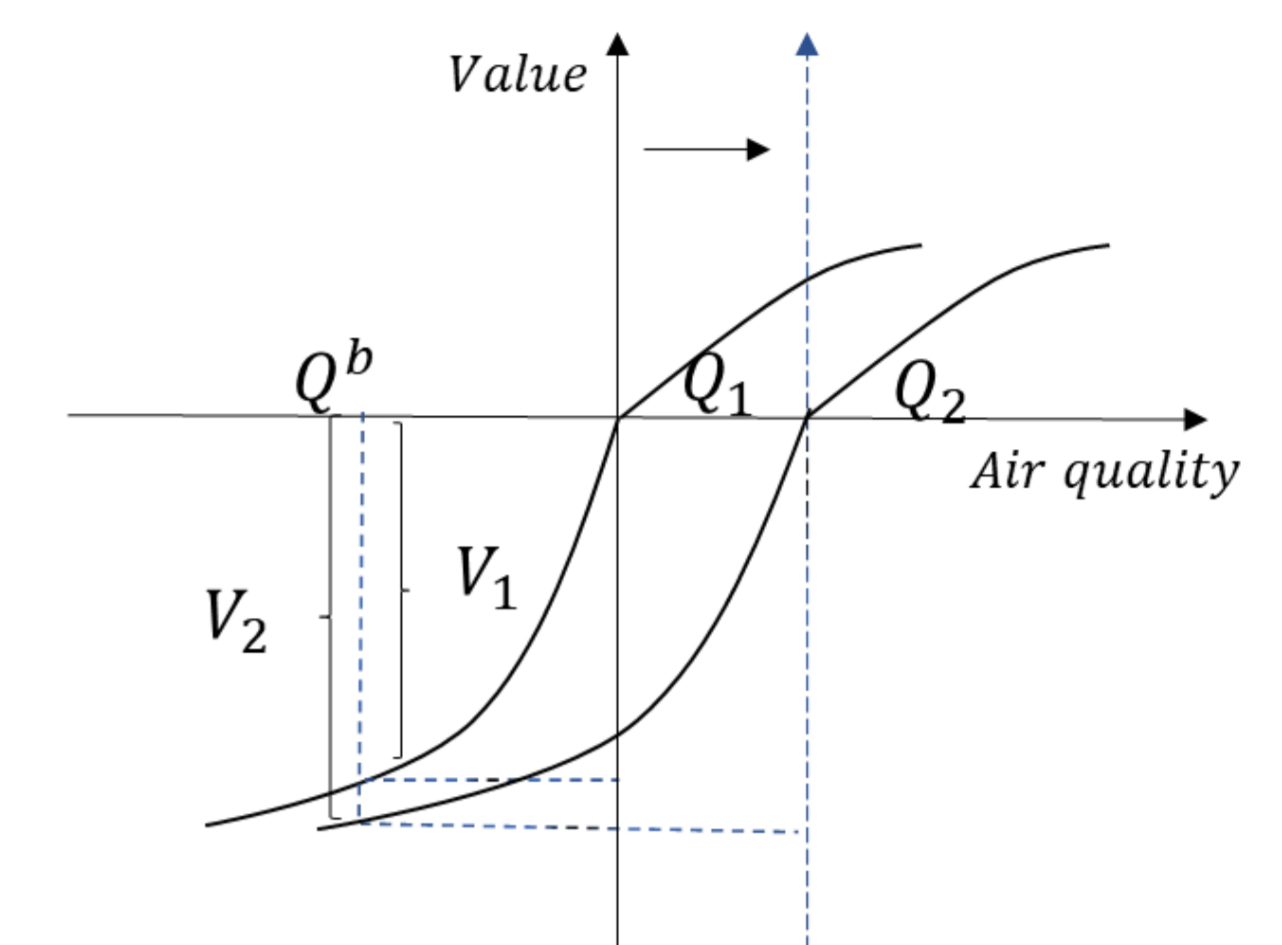


3. Result

- Buyers: Full adaptation to air pollution; Upward adjustment when given damage information.

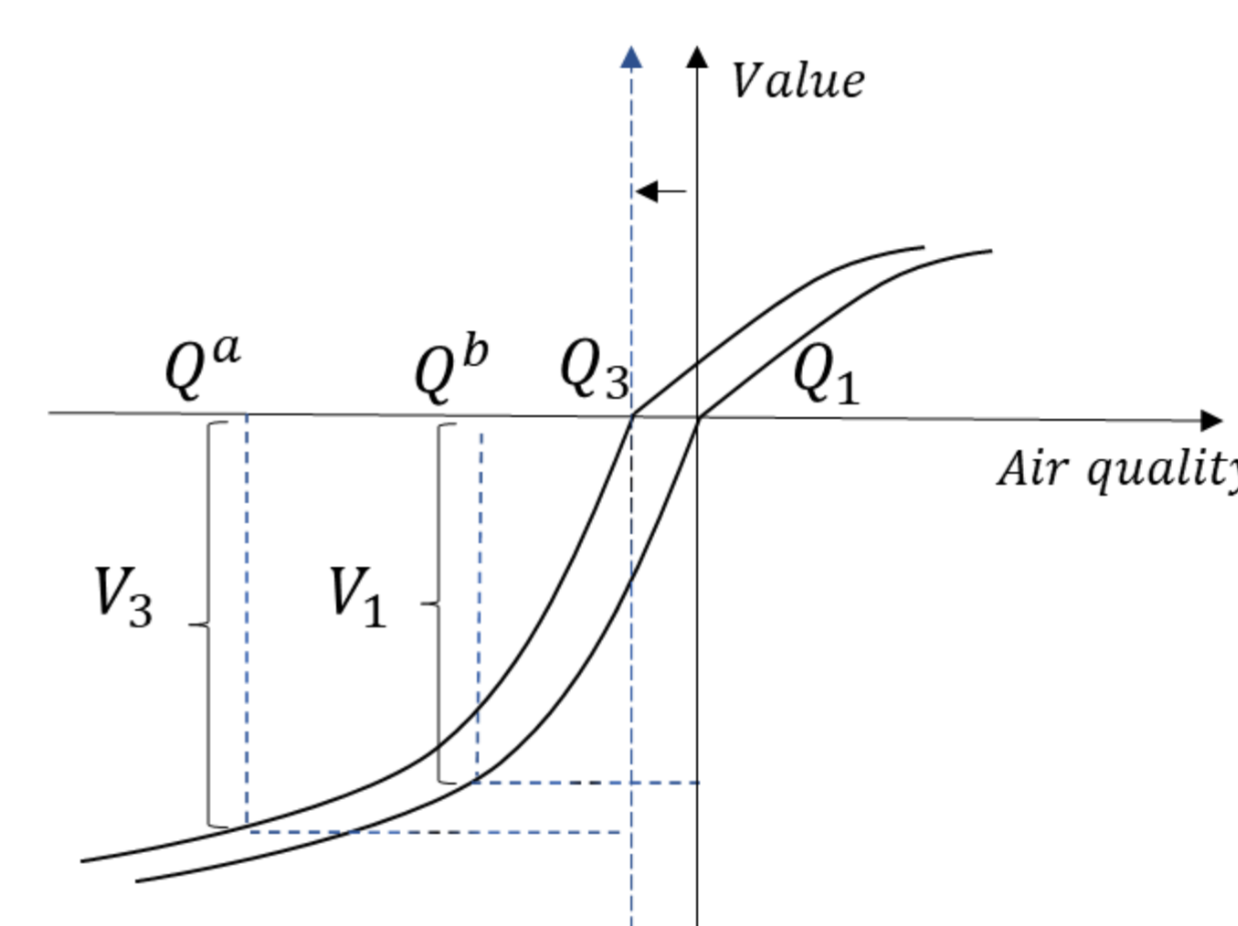


(a) Full adaptation to air pollution

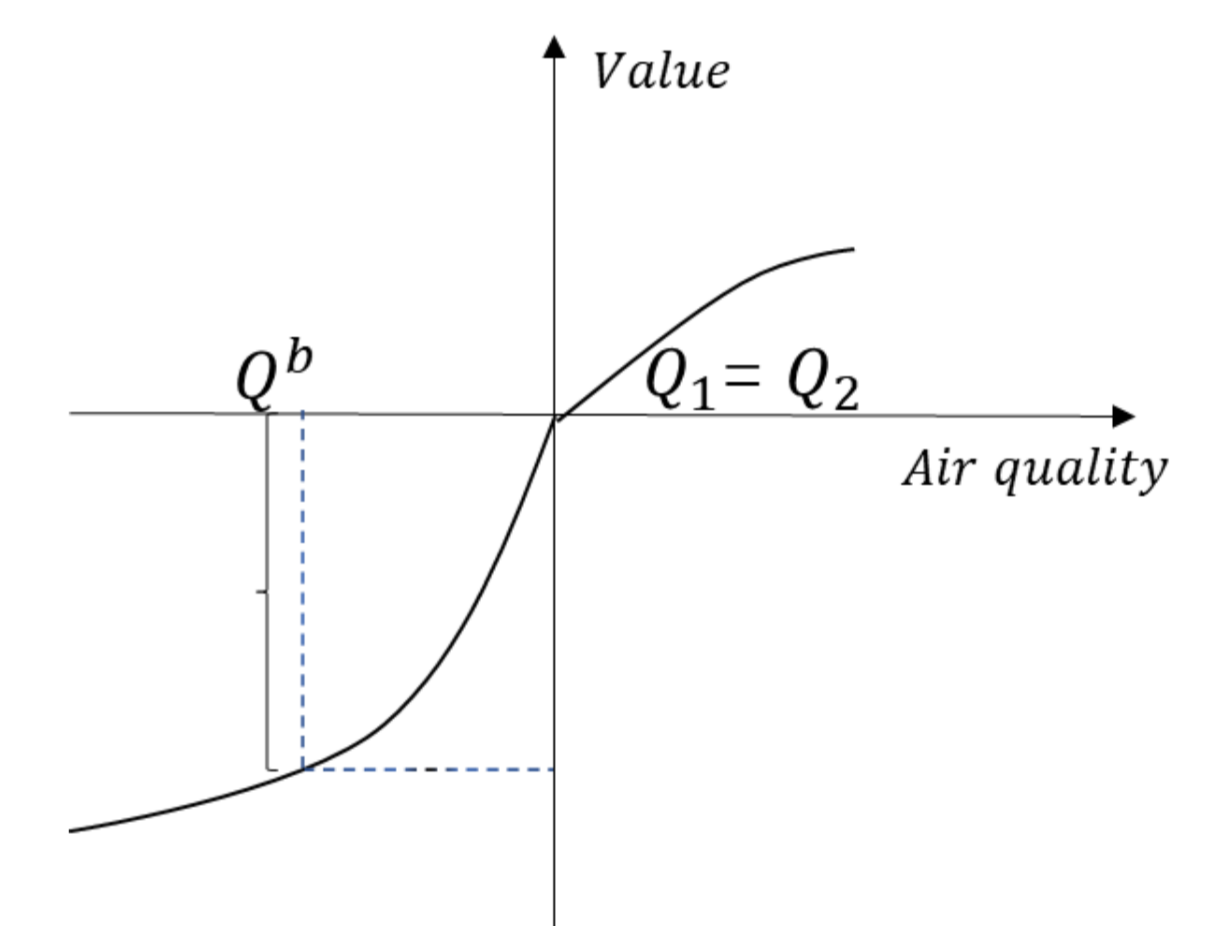


(b) Upward adjustment given damage information

- Sellers: Partial adaptation to air pollution; No adjustment when given damage information.



(c) Partial adaptation to air pollution



(d) No adjustment given damage information

- Asymmetric adaptation: harder to adapt to losses than to gains.

5. Acknowledgment

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