条件价值法及其误差来源

--绿色电力的支付意愿

一、背景知识-绿色电力

➤ 绿色电力（GE）

- 利用特定的发电设备，如风机、太阳能光伏电池等，将风能、太阳能等可再生的能源转化成电能

- 公共资源

  ◆消费竞争性：只有购买GE才能使用绿色电力

  ◆非排他性：使用GE带来的环境质量变好是人人能享受

- 购买GE原因：私人支出中的纯粹利他主义

一、背景知识-支付意愿

➢ WTP定义

- 补偿变化：提供公共物品，消费者为了达到效用增加水平而必须放弃的货币收入金额→支付意愿WTP

- 等价变化：不提供公共物品，需要向消费者提供的补偿金额，使其达到更高效用→受偿意愿WTA

➢ 基于保留价格的WTP三种定义：

- 最低保留价格（底价）：消费者购买产品的最高价格

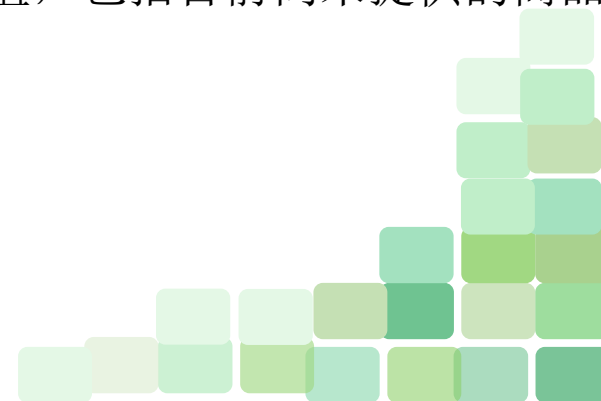- 无差别保留价：消费者对购买和不购买漠不关心的最高价格

- 最高保留价格：消费者绝对不会购买产品的最低价格

一、背景知识-环境价值评估

➤ 环境价值评估

- 方法 | 供给端 机会成本法、剂量反应方法、重置成本法

  需求端 | 显示偏好 消费者对公共商品的需求通过市场中相关商品的购买情况来揭示
  特征价格法、实验拍卖、旅行成本模型等

  陈述偏好 | 选择建模：对商品偏好建模 偏好通过属性及其水平不同组合呈现 主要是CE

  条件价值评估法（CV）：定义商品→列出属性→价值诱导方式→WTP/WTA
  对各种非市场商品进行估值，包括目前尚未提供的商品

- 本文关注CV
  ◆ 购买GE为假想市场，可选择陈述偏好两种方法进行评估 重点关注CV
  ◆ 三分之二文献采用CV估计GE的WTP

二、GE领域CV估计WTP的文献-基本特征

➢ 研究国家：缺乏新兴经济体（发展中国家） 原因是GE未投入居民生活中使用

➢ 研究重点领域

- 如何利用CV评估GE的WTP

- 分析GE的WTP的影响因素、障碍、预测因素或决定因素

- 其他，如政策偏好

➢ 研究CV方法

- 数据收集方法：电话 邮件 **线上问卷 面对面**

- 价值诱导方式：投标 支付卡 **开放式（OE） 二分法(DC)**

➢ 研究可再生能源类型对CV估计WTP的影响

二、GE领域CV估计WTP的文献-前因识别与分类

➢ 前因识别主要是研究人员对计划行为理论的延伸与拓展

➢ 分类

- 态度（对环境的总体态度或对可再生能源的态度）
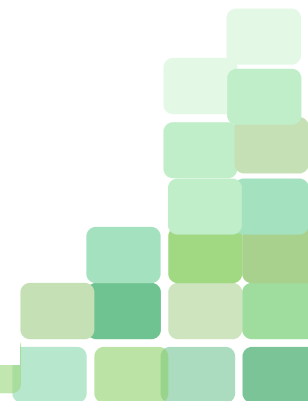- 社会规范
- 关于可再生能源的知识
- 之前在可再生能源方面的实际经验
- 社会经济特征
- 行动者特征
- 技术方面

➢ 在WTP估计模型中忽略以上因素会造成系数偏差

三、CV误差及解决

Error type	Proposed remedies	Impact of remedy
Embedding/scope effect	1. Use labels under which a good is sold. 2. Take into account the cognitive ability of respondents. 3. Control for perception and experience in the sample.	1. The use of labels leads to significant increase in scope sensitivity [91]. 2. Respondents with higher cognitive abilities have a smaller scope effect [92]. 3. Once controlled for attitude and experience, scope effects disappeared [93].
Sequencing effect	1. Use subsamples that do not offer the goods in a sequence, but as a package. 2. Use a design in which subgroups are presented in different sequences as a control. 3. Avoid multiple valuations using a stepwise approach in one research design.	1. This mitigates the sequencing effect [6]. 2. Research found no differences among respondents [92]. 3. Simple valuations do not produce a sequencing effect [94].
Information effect	1. Provide a combination of perspective, relative expenditure and provision cost information. 2. Provide information about the actual costs or quality of goods. 3. Avoid cognitively challenging information about the goods.	1. The combined effect of the three information types increases bids [9]. 2. This reduces the number of zero bids, protest bids and "don't know" responses [80]. 3. This prevents information being ignored due to it being too cognitively demanding [95].
Hypothetical bias effect	1. Only use this for goods that have characteristics close to existing goods. 2. Use a consequential survey design in which respondents believe their responses will affect something that they care about.	1. There is a smaller correlation between purchase intentions and actual sales of goods [96]. 2. For consequential surveys with well-defined incentives, stated values are closer to revealed

Error type	Proposed remedies	Impact of remedy
	3. Use a "cheap talk" survey design. 4. Use oath design. 5. Use certainty scales. 6. Apply dissonance minimisation.	WTP values [97]. 3. Meta-analyses show that cheap talk reduces this type of bias [98]. 4. An oath-only design results in more sincere bidding behaviour [99]. 5. Well-designed certainty scales mitigate hypothetical bias [100]. 6. The use of dissonance minimisation is effective in mitigating hypothetical bias, but it cannot be used with open-ended responses [100].
Strategic bias effect	1. Use incentive-compatible elicitation techniques. 2. Use and make known that the sample size is large. 3. Design the payment vehicle in such a way that it is clear that there is a budget constraint. 4. Ask for a compulsory contribution (for example, tax percentage). 5. Use scenarios with background information describing the type of management strategy, its risks and benefits. In addition, ask behavioural or experience questions specific to each scenario before the WTP question is introduced. 6. Use in-person surveys for direct contact with the respondent.	1. The use of reservation price and undisclosed price setting lowered this effect [14]. 2. Through a large sample size, the impact of the individual respondent is (perceived as) low, which reduces strategic bias [13]. 3. The presence of a budget constraint lowers the probability of overstated WTP [87]. 4. A scenario with a compulsory (tax) contribution lowers the probability of free-riding behaviour [101]. 5. This allows the researcher to capture strategic bias with a distinct variable and provide a better model for WTP estimation [102]. 6. In-person surveys make the act of being dishonest a much harder task and are less prone to strategic bias [103].
Elicitation effect	1. Use payment card. 2. Use a multiple-bounded discrete choice approach.	1. Payment card responses are not sensitive to range effects as long as the card includes values that are large relative to the respondent's value [104]. 2. This allows the respondents to vote on a wide range of referendum thresholds and provides a higher level of precision [82].

四、结论

➢ 结论：

- CV主要通过两种价值诱导方法测量GE的WTP

- 识别与总结影响GE的WTP前因，CV估计WTP时，忽略该属性导致系数偏差

➢ 贡献：

- CV诱导技术存在的问题，并提出解决措施

- CV的收敛+理论有效性受质疑

  ◆DC和OE的收敛有效性
  ◆将前因纳入WTP估计可检验理论有效性

➢ 展望：

- 开展收敛有效性与方法对比研究

- 将前因纳入WTP估计模型，检验理论的有效性

	Water pricing with household surveys: A study of acceptability and willingness to pay in Chongqing, China
年份	2010
	基于重庆7个除市区外的郊区问卷数据，利用MBDC（价值诱导方式）与两步法（wtp估计·方式）来评估居民对于家庭用水改善服务的支付意愿（WTP）与价格接受度，并检验了MBDC中价格顺序对WTP的影响

消除偏差（不确定性角度）	偏好不确定：
	  价值诱导方式：MBDC
	  估计方法：Wang and He (2011)
	次序偏差：改变投标价格的顺序
	假想偏差：cheaptalk

创新	从供给端考虑定价会忽略社会福利与公平，从需求端考虑居民水价 消除偏差：诱导+估计等
展望	水价定制从供需双侧进行考虑 次序效应
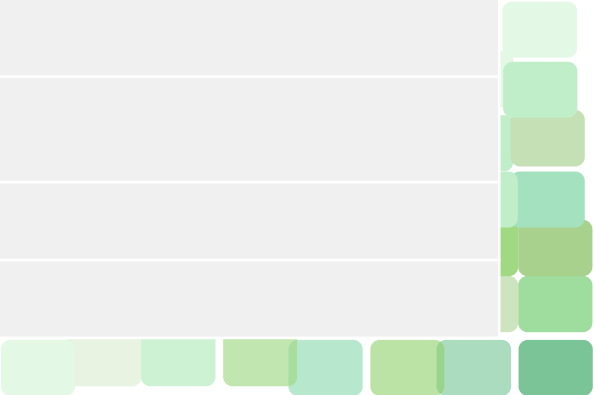
	Willingness-to-pay for water quality improvements in Chinese rivers:An empirical test on the ordering effects of multiple-bounded discrete choices
年份	2013
	基于多元离散选择（MBDC）价值诱导方法和Wang and He (2011) +Welsh and Poe (1998)法评估了中国云南省华坪县两条主要河流的水质改善价值，并对相关的潜在排序效应进行了实证检验，表明选择呈现顺序可能不会对WTP估计产生显著影响，但投标水平的呈现顺序可能会产生显著影响
消除偏差（不确定性角度）	偏好不确定 　　　　价值诱导方式：MBDC 　　　　估计方法：Wang 和 He (2011)（数值概率编码策略） 　　　→两步法(随机价值理论WTP非唯一确定值）+Welsh 　　　和 Poe (1998)法（广义双有界似然区间法） 次序偏差：改变投标价格的顺序 起点偏差：给定投标水平（非0值）从前景理论出发 假想偏差：cheaptalk
创新	大多数选择中东部，本研究采用西南部河流改善涉及到的村镇 消除偏差：诱导+估计等
展望	次序效应