Methods for Net Savings Estimation

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Research Into Action

Key Issues of Concern

- Counterfactual
  - Measuring what would have happened in the absence of the program
- Bias
  - Systematic under- or over-estimation
- Reliability
  - Similar results over repeated or multiple observations by multiple observers

More Issues of Concern

- Validity
  - Whether a metric measures what it is intended to measure
- Construct Validity
  - Whether experimental definition matches the theoretical definition

Methods for Net Savings Estimation

With Some Overlaps

- Non-statistical methods
- Methods that can use billing data
- Market level methods
- Self-report methods

Non-Statistical Methods

Method	Advantages	Disadvantages
Deemed or Stipulated Savings	Low cost; simple	Not based on program specific or year specific information; cannot assign statistical precision
Historical tracing	Multiple information sources	Difficult to determine the magnitude of effects; self-report issues may affect sources; cannot assign statistical precision
Structured expert judgment	Uses expert professional judgment independent from evaluators; useful for complex and diverse program	Possible error from judges; cannot assign statistical precision

Methods that Can Use Billing Data

Method	Advantages	Disadvantages
Randomized Control Trials	Gold standard, limits bias; increases reliability and validity	Bias can result if drop outs differ; ethical concerns over random distribution of benefits; must be structured before implementation begins
Econometric Modeling	Can provide statistically valid estimates of net impacts	Variation in usage may be larger than savings; self-selection bias; true non-participants difficult to find; cannot disaggregate net effects; large customers bias results; may estimate adjusted gross not net

Market Level Methods

Method	Advantages	Disadvantages
Cross-sectional studies	Useful where participation is difficult to define; compares actual behaviors and market actions	Limited by availability of sales and shipment data; gaps in data lead to inaccurate results; comparison areas difficult to identify; expensive
Macro-economic modeling	Estimates cumulative net effects	Method still being developed, error may be larger than for bottom-up approaches; requires macro level data

Self-Report Methods

Method	Advantages	Disadvantages
Self-reports	Simple; may be less expensive than other methods; flexible; direct information on behavior; does not require a nonparticipant sample	Likely non-response bias and recall bias as program influence may be unknown; construct validity poor; usually conducted months or years after decision; possible incorrect assignment of FR values by evaluators; ineffective for spillover as cannot determine energy value
Enhanced self-reports	Same as above; more effective for spillover	Same as above; more expensive than standard self reports

Choosing an Approach

- Understand the options and limitations of each approach
  - What is your budget?
  - How much time do you have?
  - What data are available or obtainable?
  - Does method match how results will be used?
  - How important is it to have a 'true' answer?
- Consistency permits comparisons