RCTs: The Opportunity

CPUC Workshop on AB802 Normalized Metered Energy Consumption

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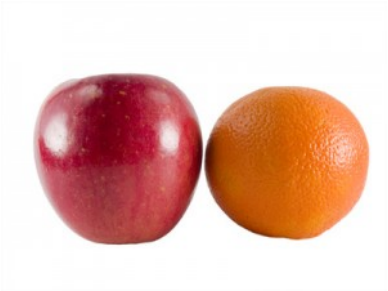
How to measure the impact of a program?

Goal

Isolate the impact of just the program

No Counterfactual

Challenge



And this is only for observable characteristics!

Limitations

1 Regression analysis?

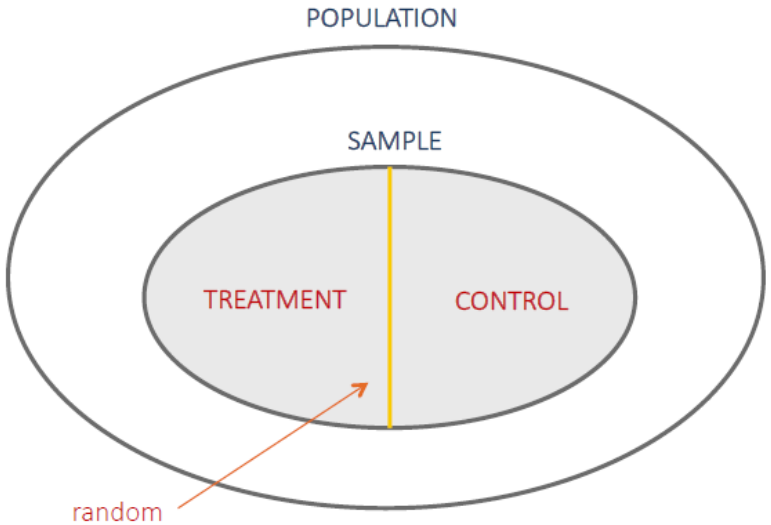
Unobservables

2 Engineering estimates?

Rebound

The main advantage of a Randomized Controlled Trial (RCTs) is that it ensures a balanced comparison group

Design



Can't enforce the assignments?

1. Randomized Encouragement Design
2. Over-Subscription Methods

Implementation

Find representative sample → Use lottery to define groups → Offer program, collect data → Compare control and treatment

Why RCTs?
Reason 1: Because they produce simple and clean results

A scientific approach

- No caveating needed
- Clean, simple
- Easy to communicate
- If you convince me that the design/ implementation was done right I'll believe your results

A worldwide trend

Why RCTs?
Reason 2: they allow you to compare AND fine-tune policies

1 Offering Rebates

2 Giving Retrofits

3 Sending HERs

Why RCTs?
Reason 3: Because the data already exists!

big data
search
petabytes
large sets
storage
software
analysis
internet
information
new
research
science
world
technologies
volume
san
nas
based
future
development
management
process
technology
learning
billion
exabytes
government
size
million
terms
countries
business
replication
real
times
economic
parallel
cost
used
high
set
state
use
time
applications
people
trends
challenges
databases
processing
systems
shared
intelligence
annual
institute
determine
social
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initiative
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critiques
sensor
amount
worldwide
analytics
results
across
insight
computer
framework
database
queries
limits
hypothesis
market
hand
companies
drive
announced
huge
structure
variety
years
factor
decision
related
per
flow
year
even
higher
end
relevant
integration
terabytes
mapreduce
networks
definition
increasing
funding
project
currently
algorithm
infrastructure
advertising
visualization
statistics
sources
users
manage
tools
less
program
second
becomes
distributed
privacy
ability
complex
center
queries
parallel
system
work
critique
trends
uses
include
out
every
handle
rate
successful
approach
system
using
online
manage
use

What are the disadvantages?

1

Sometimes they are not feasible

- Cannot randomly build power plants
- Sometimes the program is already launched

→ Quasi-Experiments

2

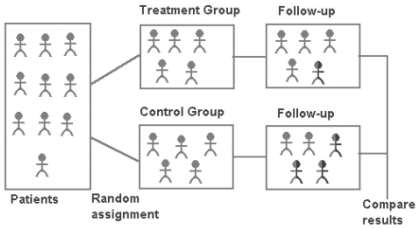
Require investment in expertise

- Creative design → Lower burden of implementation
- Mistakes common → Execution, Design, Validity, Analysis

Best Practices
Keys to successful RCTs

1. Think up front: incorporate RCT into program pilot

2. Be transparent with the methodology



3. Develop a strong test-learn-refine culture

Thank you!
Please feel free to contact us

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