Federal Communications Commission

Pilot Program

May 14, 2012

Fundamental Problem of Evaluation

- "What would have happened in the absence of the program" -- cannot be observed directly

- Evaluator must find a way to estimate what outcomes would have been in the absence of the program ("counterfactual")

ROBERT FROST
The Road Not Taken

TWO roads diverged in a yellow wood,
And sorry I could not travel both
And be one traveler, long I stood
And looked down one as far as I could
To where it bent in the undergrowth;

• • •

I shall be telling this with a sigh
Somewhere ages and ages hence:
Two roads diverged in a wood, and I—
I took the one less traveled by,
And that has made all the difference.
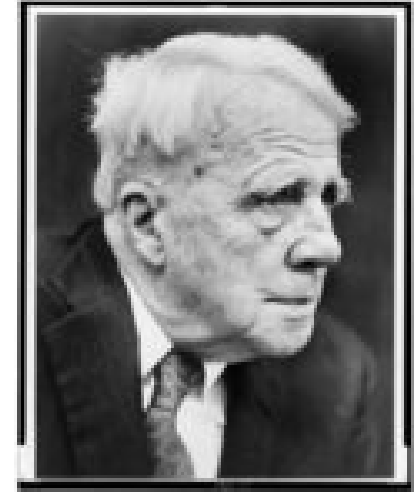
RANDOM ASSIGNMENT

- **Concept:** Randomly assign potential participants to *treatment group* or to *control group*

- **Impact:** Mean outcome of **treatment group** – Mean outcome of **control group**

- Impact can be attributable to the program because treatment and control groups differ only by chance

IMPAQ
INTERNATIONAL LLC

Random Assignment Design

Community Outreach

Registration

Random Assignment

Treatment Group

Control Group
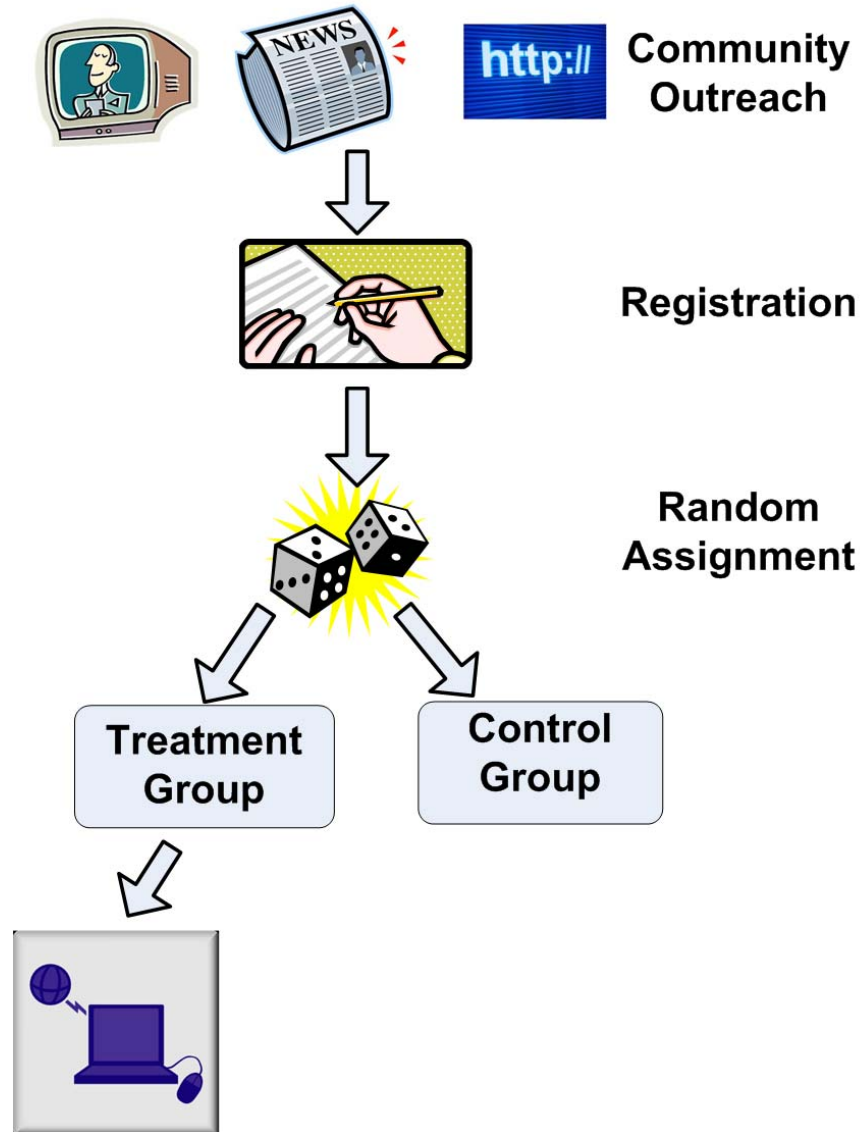
THANK YOU!

Jacob Benus

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443-367-0379

Example of a Rigorous Field Experiment: The Impacts of PBS's *Ready to Learn* Workshops

Peter Z. Schochet, Ph.D.

Webinar for the Broadband Adoption Lifeline Pilot Program, May 14, 2012

MATHEMATICA
Policy Research, Inc.

Mathematica Policy Research

- **Founded in 1968**

- **Conducts rigorous, objective policy evaluations using state-of-the art methods**

- **Many U.S. and international clients**

- **900 employees, 500 with advanced degrees**

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The *Ready to Learn* Workshops

- **Supported by PBS and the Department of Education (ED)**

- **Conducted by *Ready to Learn* stations**

- **Trains parents and educators to use PBS programs as teaching tools for children 8 and younger**

- **Targets disadvantaged families**

Design, Step 1: What Are the Research Questions?

- **What do *Ready To Learn* workshops provide?**

- **Who participates in them?**

- ***What are their short- and longer-term impacts for children between the ages of 3 and 5?***

  - ➢ **Are particular types of workshops more effective?**

  - ➢ **For whom are workshops most effective?**

Design, Step 2: Which Stations to Include for the Study?

- **Staff need to agree to participate**

- **Workshops must be *oversubscribed* to create control groups**
  - ➢ **Needed a plan for increasing outreach**

- **Need enough stations to obtain *precise* impact estimates on key outcomes**

- **Selected 20 stations; 85 workshops; 2,300 families**

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Design, Step 3: Where is the Point of Random Assignment?

- **Two options**

  - **At the start of the workshop (75% of stations)**

  - **In advance if there was advance registration**

- ***Informed consent* obtained from parents**

- **50% assigned to the workshop group and 50% to the control group**

- **Controls could *not* attend workshops for 6 months**

Design, Step 4a: What Are the Key Study Outcomes?

- **Television viewing and co-viewing**

- **Reading**

- **School readiness**

  - **Language and literacy skills**

  - **Tests of cognition**

  - **Social and emotional development**

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Design, Step 4b: How Should the Data Be Collected?

- **Baseline, 3-month, and 6-month surveys of parents conducted by Mathematica**

- **6-month in-person child assessments**

- *High response rates for both workshop and control groups*

  ➢ **90-99% for adult surveys**

  ➢ **78% for child assessments**

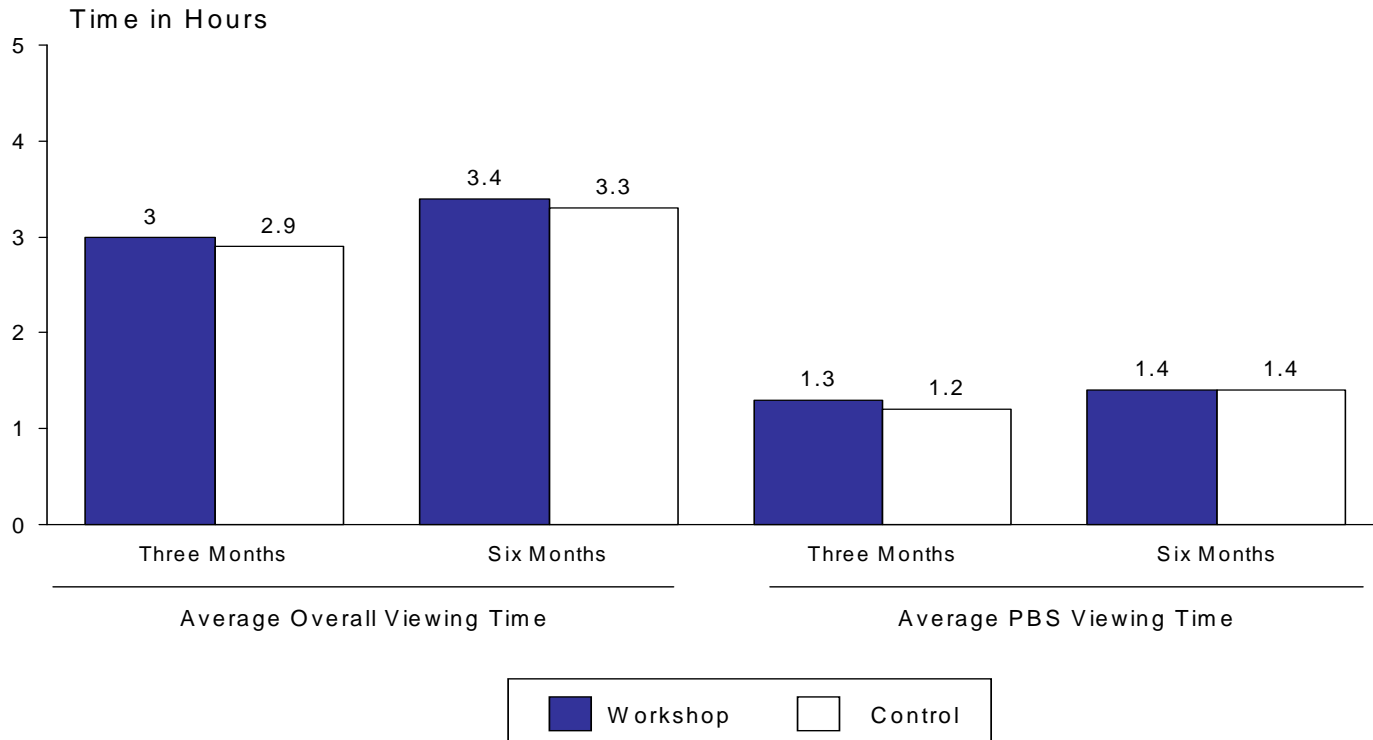- **OMB approval was *required* for surveys**

Did Random Assignment Work?

- **Intake was conducted in all 85 workshops during the one-year period**

- **Baseline characteristics are very similar for the workshop and control groups**

- **92% of the workshop group reported attending workshop**

- **Very few controls enrolled in *RTL* workshops**
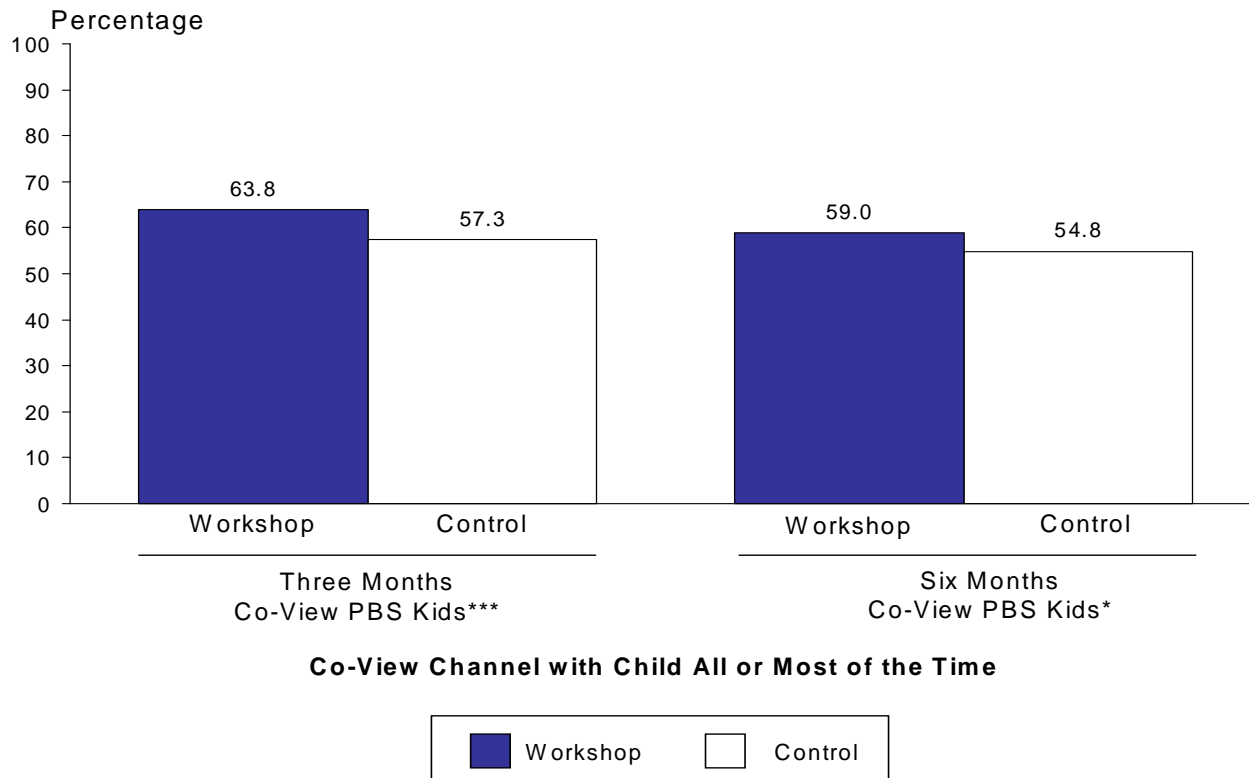
No Impacts on Daily Television Viewing

Source: Parent and Educator First and Second Follow-Up Surveys.

*Estimate significantly different from zero at the 90% confidence interval, two-tailed test.
**Estimate significantly different from zero at the 95% confidence interval, two-tailed test.

Positive Impacts on Daily Television Co-Viewing

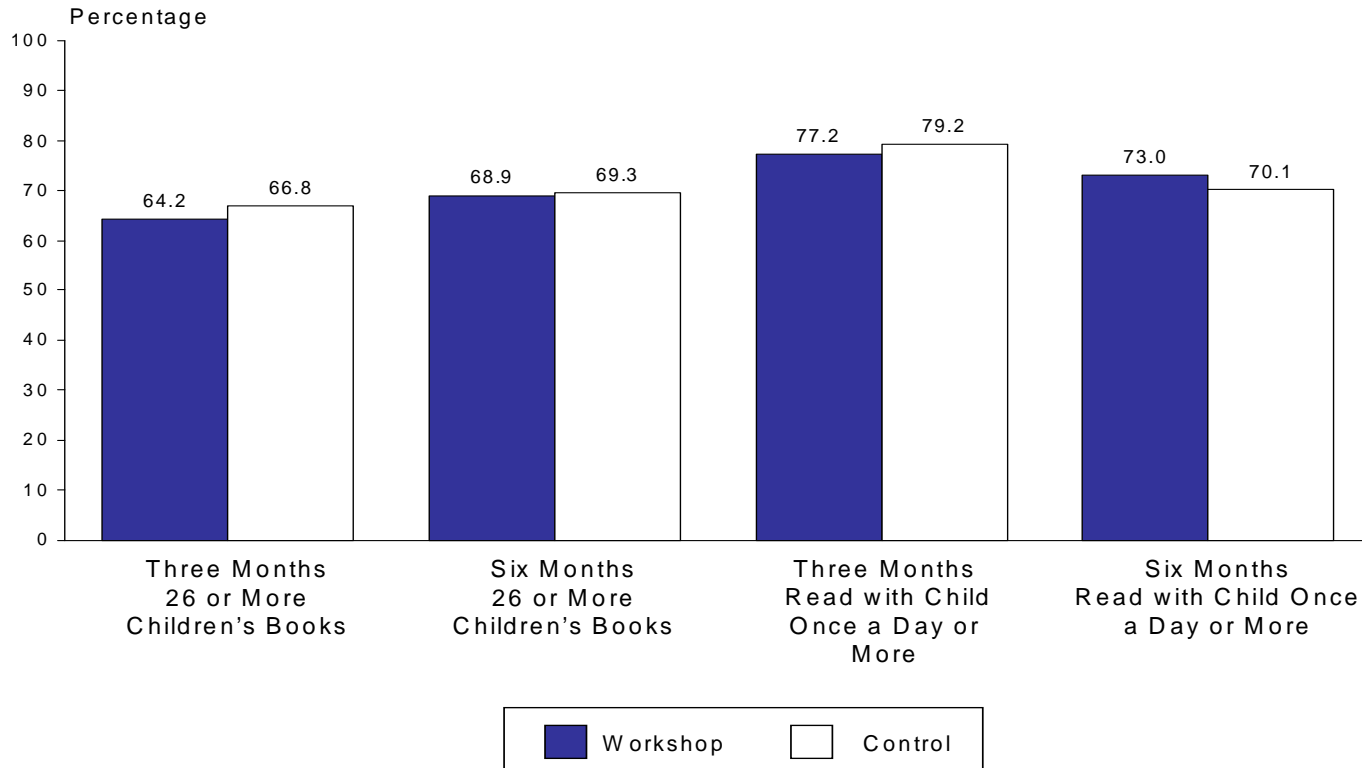

Source: Parent and Educator First and Second Follow-Up Surveys.

*Estimate significantly different from zero at the 90% confidence interval, two-tailed test.
***Estimate significantly different from zero at the 99% confidence interval, two-tailed test.

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No Impacts on the Presence of Children's Books and Reading with Children

Percentage

Source: Parent and Educator First and Second Follow-Up Surveys.

No Impacts on School Readiness

Source: Child Assessment and Parent Second Follow-Up Survey.

**Estimate significantly from zero at the 95% confidence interval, two-tailed test.

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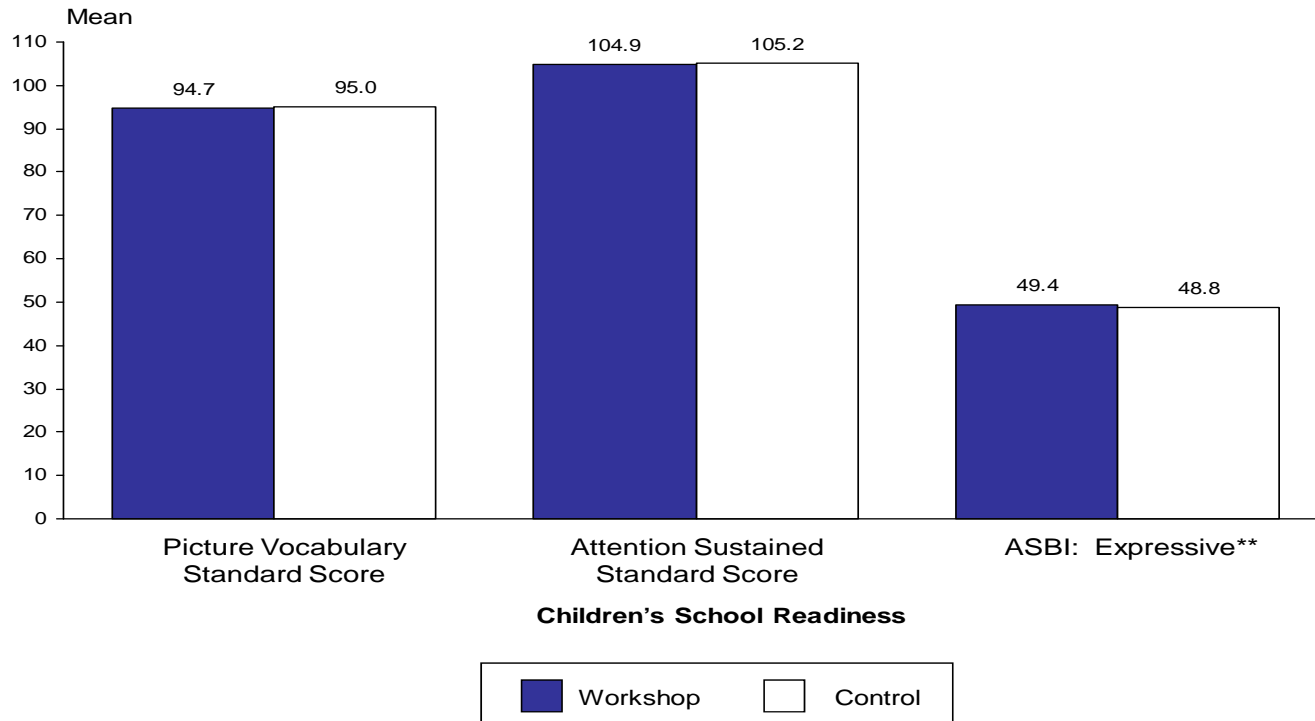
What Made This Study Successful?

- **Careful planning**

- **Close collaboration between researchers and PBS station staff**

- **Sufficient sample sizes**

- **Procedures to ensure site compliance and to monitor random assignment**

- **High survey response rates**

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Stephen Bell

Abt Associates

Part III

Addressing the Broadband Evaluation Component

Presentation to the Federal Communications Commission's Webinar on . . .

Participating in the Broadband Adoption Lifeline Pilot Program

May 14, 2012

Who Am I?   A Final "Talking Head"

- Stephen Bell, Abt Associates Senior Fellow

- 25-year "veteran" at designing randomized field experiments to test ways of assisting low-income families

- Principal scientist in an organization—Abt Associates—that conducts more large-scale social experiments than any other research firm

- Have an office in Bethesda, Maryland

- Currently working on field experiments for Departments of Labor, Education, Housing, Agriculture, and others

# What I Will Talk About: Responding to the Pilot's Evaluation Component

- Describe what <u>tests</u> of broadband strategies require
  - = *clear goals* + *variety of interventions*

- Help you understand what an <u>evaluation</u> requires
  - = *enough subscribers* + *good data*

- Explain what happens once you identify subscribers
  - = *collect background data* → *randomize* → *serve* → *collect outcome data*

- Help you grasp <u>how long</u> you have to set your course
  - = *less time than you think!*

- Advise you on what you need to <u>pull it off</u>
  - = *immediate planning* + *good evaluation partner*

FCC Goals Support Business Questions You May Want Addressed

- <u>FCC goal</u>: Broadband <u>adoption</u>

- Your question (example):

  "*What monthly discount hits the 'break point' between attracting subscribers and not attracting them?*"

- <u>FCC goal</u>: Broadband <u>retention</u>

- Your question (example):

  "Does digital literacy training enhance customer value enough to increase post-discount subscription?

All Tests of Broadband Strategies = Comparisons of Two Approaches
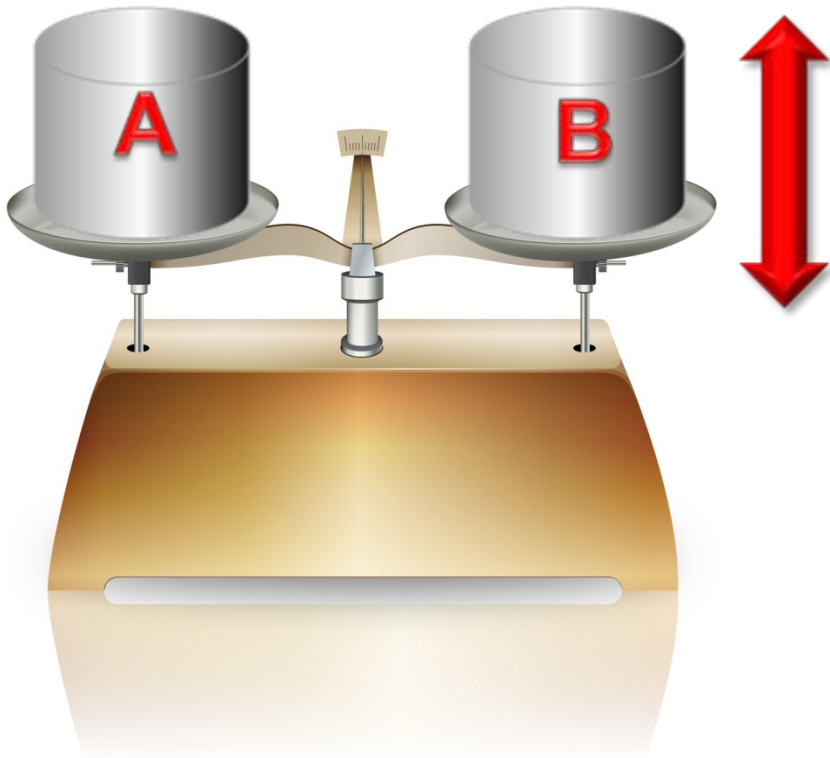
"Like-to-Like" Does Not Inform…but Assistance vs. None Reveals a Lot

Getting Started: What? For Whom?

What:

- Which broadband strategies do you want to test?

- Do you want to learn . .

  – how much does a particular strategy beat the status quo?

  – which strategy works best (e.g., discount vs. high-speed)?

For whom:

- What set of potential subscribers do you want to target?

- How will you identify and reach them?

- Can you get enough?

Who… & How to Find Them: Option 1

- Existing *Lifeline* subscribers
  - easy to identify
  - easy to reach
  - they are all eligible

- Should you target certain demographic profiles?
  - will that maximize your "capture" (adoption) rate?
  - are the prospects of retention stronger?
  - are there enough . . . ?

Who… & How to Find Them: Option 2

- New customers — focus here only if . . .

  - you want to expand your overall client base, <u>or</u>

  - you think the FCC would welcome proposals to help more households get voice service—and broadband, <u>or</u>

  - you cannot get enough research subjects from just your existing *Lifeline* clientele

- Should you target certain demographic profiles?

  - maximize "capture" rate?

  - stronger prospects of retention?

  - are there enough . . . ?

How Many Subscribers Is "Enough"?

- Public Notice says "obtain sufficient sample size"

- Federal agency rule-of-thumb = 500+ households *for each strategy tested* (and 500+ in a control group)

- 500-700 more likely to be adequate if test strategies that

  - really differ from one another

  - contrast with "no broadband assistance" control group

  so large effects are detectable

- Need 1,000+ households if randomize whole neighborhoods; e.g., *for each strategy*

  - 30 neighborhoods x 50 households each = 1,500

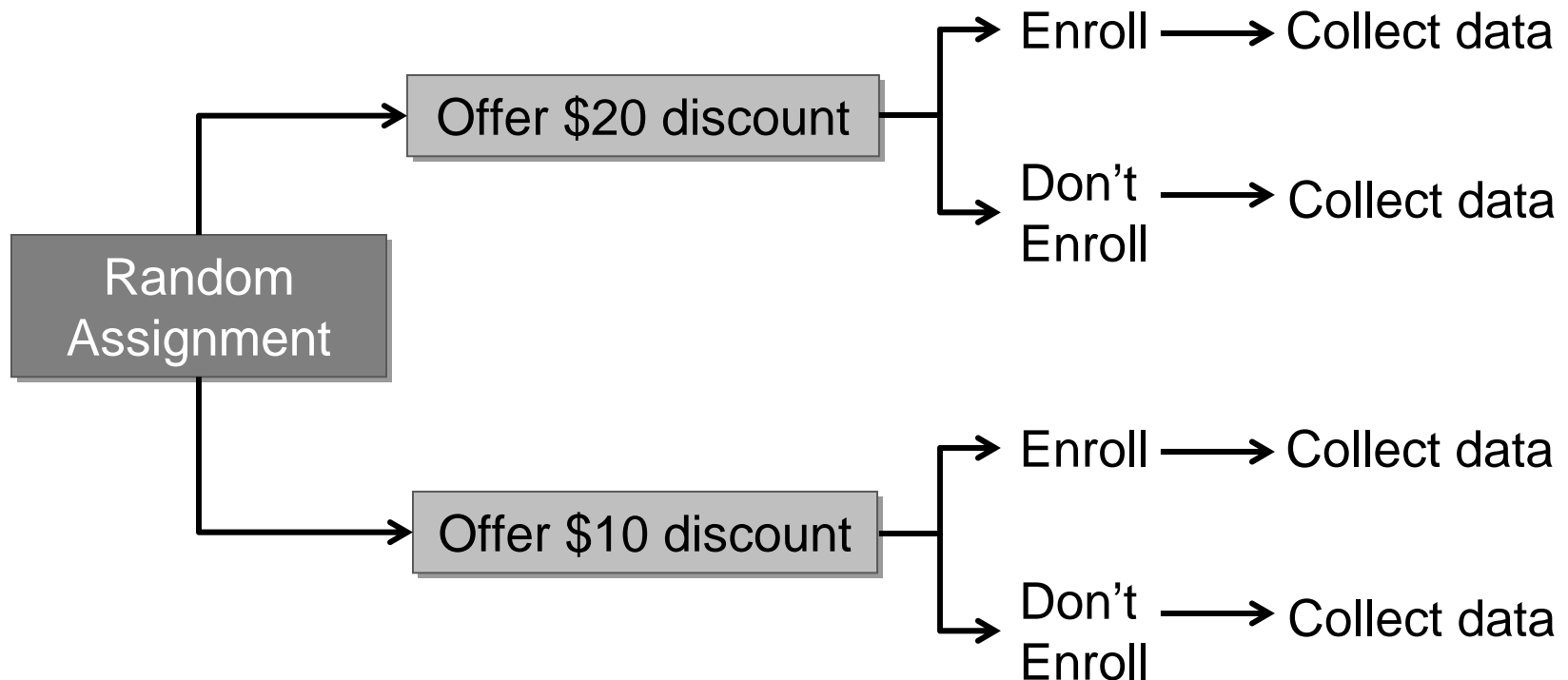# Public Notice Gives Guidance on What Would Be a Strong Application

Strongly "encouraged" or "favored":

- Random assignment / experimental design (p.2)

- Partnering with experts in designing field experiments, to show technical capability (p.3)

- Final report using participant and control group data to address questions about adoption and retention (p.4)

Required:

- Anonymized data on all pilot participants and control group members (p.4), in a standard format (appendix)

How Might Random Assignment Work?   One Model . . .

Random Assignment → Offer $20 discount → Enroll → Collect data; Don't Enroll → Collect data

Random Assignment → Offer $10 discount → Enroll → Collect data; Don't Enroll → Collect data

How Long Do You Have?
Doing the Pilot in 18 Months

- 3 months to prepare after receive grant funding

- Begin randomizing & serving subscribers in month 4

- 9 months to enroll all subscribers *(end of month12, or sooner!)*

- Only 3 more service months allowed *(to end of month15)*

  - *maximum* service interval = 12 months

  - *minimum* service interval = 3 months

  unless provide longer-term assistance from non-grant funding

- Once grant services end, 3 months to submit final subscriber outcome data *(by end of month18)*

How Long Do You Have? Bidding an Evaluation in 6 Weeks!

By May 21   Decide what you can offer a research partner
- -- strength of strategies you will test
- -- likely scale & sample size
- -- random assignment or no RA?
- -- role in final report?
- -- assurance you can raise research $$

May 28   Have a research partner on board

June 14   Agree on research design you like & can fund ($)

June 21   Insist on having fully documented research budget

June 25   Insist on having all written materials in draft

Part III

Addressing the Broadband Evaluation Component

***For more information, contact*:**

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