The Importance of Causal Research and Evaluating Policies

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Policy Evaluation

In the policy world, the policy itself is rarely the goal. The goal is the outcome, usually related to welfare.

Example policy: increase access to contraception among teens.

- Did the policy do what we wanted it to do (reduce pregnancies, improve women’s well-being)?
- Was the impact big or small? (Was it worth it?)
- Did the policy do anything we didn’t expect?

How might we answer these questions?

Suppose we observe that:
- Very few of the teens who used the contraception got pregnant.
- After the policy change, teen pregnancy went down.
Economists are obsessed with establishing the *causal* effects of policies.

Source: Randall Munroe, https://xkcd.com/552/
Sexual Content on TV is linked to teen pregnancy
LA Times, 11/3/08

Teenagers who watch a lot of television programs that contain sexual content are more than twice as likely to be involved in a pregnancy, according to a study published today in the journal Pediatrics.

The teens who watched the most sexual content on TV (the 90th percentile) were twice as likely to have become pregnant or caused a pregnancy compared to the teens who watched the least amount of sexual content on TV (the 10th percentile).
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- Watching Sex on TV
- Teen Pregnancy
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Resources, maturity
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Poor Supervision
Interest in Sex

Watching Sex on TV
Teen Pregnancy
The birthrate among teenagers across the state plunged by 40 percent from 2009 to 2013, while their rate of abortions fell by 42 percent, according to the Colorado Department of Public Health and Environment.
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Motivation

Source: Lindo and Packham, 2017

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**Teen birth rates**

Source: Lindo and Packham, 2017
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Teen birth rates

Source: Lindo and Packham, 2017
To the Editor:

After highlighting that Colorado’s teenage birthrate has fallen 40 percent since the family planning initiative began in 2009, your article notes that teenage birthrates have fallen nationwide. This naturally raises the question of how much of the decline in Colorado is due to the initiative and how much is due to other factors. This is the question that we try to address in our study.

After accounting for pre-existing trends, demographics, economic conditions and the changes taking place in counties similar to the Colorado counties with clinics participating in the initiative, our analysis indicates that teenage birthrates were reduced by about 5 percent in the first four years.

While not nearly as striking a number as the 40 percent drop in Colorado, it is still arguably large in light of the many policies that have had little to no effect on teenage childbearing.

Moreover, it is closer to what we should expect from this program, because it has effectively led teenagers to switch from birth control pills, which are 91 percent effective at preventing pregnancy in the first year of typical use, to methods that are 99 percent effective.

JASON M. LINDO

ANALISA PACKHAM
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Parents should consider limiting their teen's exposure to sexual content on TV, said the study's lead author, Anita Chandra, a behavioral scientist at RAND, a nonprofit research organization. Television producers should consider more realistic depictions of the consequences of sex in their scripts . . .
What to do?

Trying to identify a *counter-factual*. What would have happened in the absence of the policy?

1. Regression analysis to account for trends, other simultaneous changes, confounding factors.

2. Do an experiment!
   - Not the focus today, but more feasible than you might think.

3. Natural experiments: look for ways in which the world has done the experiment we’d like to do.
   - Need some kind of comparison group.
Natural Experiment Method 1: Differences-in-Differences

Look at how the outcome changed over time for both the treated population and a similar untreated group.

Colorado counties see a 40% decline from 2008-2013.

Similar counties in other states saw a 33% decline.

The difference in the differences suggests that Colorado’s policy reduced teen pregnancies by ~7%.
Natural Experiment Method 1: Differences-in-Differences

Example from my work: school condom distribution programs and teen fertility.

![Graph showing ratio of teen fertility rate to rate for women 20-24 over years relative to program implementation.]
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Example from my work: school condom distribution programs and teen fertility.
Other Differences-in-Differences Findings

• After the Pill was introduced, women married later and more women earned graduate degrees (Goldin and Katz, 2002)

• The Pill led to large reductions in fertility among married women (Bailey, 2010)

• Roe vs. Wade reduced fertility in the U.S. by about 4% (Levine et al., 1999)

• Parental notification laws in Texas reduced abortions among teens and increased teen pregnancy (Joyce, Kaestner, and Colman, 2006)

• Access to emergency contraception led to increases in STIs in England (Girma and Paton, 2011) and in the U.S. (Durrance, 2012)
Natural Experiment Method 2: Regression Discontinuity

Look for a “cutoff” that determines whether people are affected by the policy.

In October of 1995, the UK Committee on the Safety of Medicine issued a warning stating that many popular oral contraceptives significantly increased the risk of venous thromboembolism.
A dramatic price hike in the price of the Pill in Chile in early 2008 led to between 180 and 265 extra babies born per week.

These “extra” children had worse health and lower school enrollment rates.
Other Regression Discontinuity Examples

Police give all drivers a break by writing tickets for 9 mph over, but they are more likely to do this for white drivers.

Provides evidence of racial bias in policing.

Goncalves and Mello (2017)
Other Regression Discontinuity Examples
A score of 2250 is required to pass the GRE.

Those who score above 2250 the first time they take it are much more likely to have a GED.

BUT their earnings are no higher than those who barely failed.

Jepsen et al. (2012)
Natural Experiment Method 3: Instrumental Variables

Look for something “random” that changes the probability of treatment.

Ex. 1: A miscarriage affects whether a pregnant teen has a birth. We can use this to study the effects of having a teen birth on education, labor market outcomes, etc.

Ex. 2: Variation in MTV viewership rates can be used to study the effect of shows like “16 and Pregnant” on teen fertility.
What else do economists bring to policy evaluation?
Or: why economists are not as bad as you might think.
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Or: why economists are not as bad as you might think.

1. Models of “utility maximization” and “rational choice”
   - Rational decision-making doesn’t mean good decision-making!
   - People maximize utility, subject to constraints
   - *People are doing the best they can, given the resources and information they have.*
   - Incredibly flexible models (altruism, social norms)
   - Standard features: constraints matter, and people respond to incentives and prices

2. Attention to unintended consequences
   - A policy change might cause people to adjust their behavior along many dimensions
   - Ex: making a dangerous activity safer might cause people to do more of it; making one product cheaper might cause people to stop using something else
Why policy evaluation is important

Governments and service providers are also agents working to maximize utility subject to constraints.

- “Utility” comes from achieving your policy goals
- “Constraints” are budget, regulations, etc.

How can you do the most good with what you have?