

Causal Mediation Analysis in Political Science and Economics

Luke Keele

Penn State University

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Mediation in Political Science

- Imported from psychology.
- Has strong critics.

Mediation in Economics

- Almost nonexistent.
- Deaton (2010): treatments are a “black-box.”
- Coming renaissance?

Media Cues and Immigration Attitudes

Brader, Valentino, and Suhay (2008): Responses to immigration in media reports.

Treatment in Brader et al.

Knowledge Networks - Microsoft Internet Explorer

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Immigration Concerns Governors

Questions Raised About Economic, Cultural Impact of Immigrants

NEW YORK (AP) - During the 1990s, more immigrants entered the United States than in any previous decade, and the growing number of immigrants to the U.S. clearly has some Americans worried. At a state governors' convention in June, many governors called for the Bush Administration and Congress to step in to restrict the flow of immigrants.

Several governors voiced concern that immigrants are driving down the wages of American workers, while taxpayers are forced to meet the rising costs of social services for the newcomers. Governors say these views are shared by many of their constituents.

John Blaine, shift manager at a large auto parts factory in Cleveland, said he is angered that "a number of friends have been laid-off or forced to take a pay cut" because of the influx of cheap immigrant labor.

Nancy Petrey, a Boulder, Colo. nurse, has seen staff let go for similar reasons. "People give twenty years of their lives to this hospital and then, boom, they're out the door because some foreigner will do their job for half the pay," Petrey said. "It just isn't right."

Governors also say constituents are worried that the country is no longer a "melting pot," because new immigrants are not adopting American values or blending into their new social world.

Mary Stowe, an Omaha-based sales associate, says she is frustrated by the fact that recent immigrants to her area "do not learn English or make any effort to fit in."

Bob Callaway, a construction supervisor in Newark, says he sees similar problems with immigrants hired by his company. "These people are totally unwilling to adopt American values like hard work and responsibility," Callaway said. "I try not to complain, but sometimes they are so nasty and



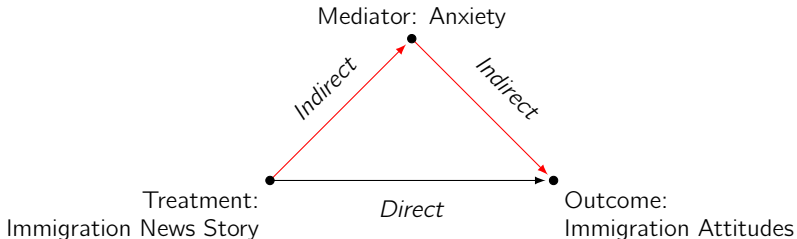
Jose Sanchez is one of thousands of new immigrants who arrived in the U.S. during the first half of this year.

Media Cues and Immigration Attitudes

Brader, Valentino, and Suhay (2008) outcomes: attitudes toward immigration and behavioral responses.

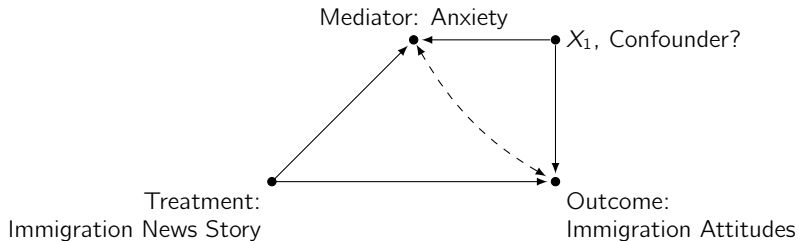
Causal mediation analysis in Political Science

- Brader, Valentino, and Suhay (2008).



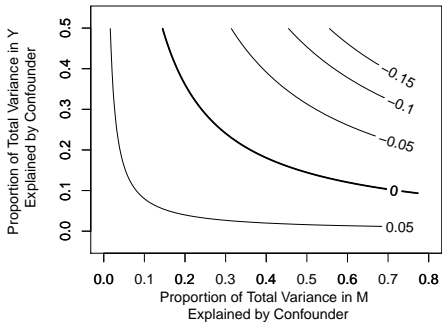
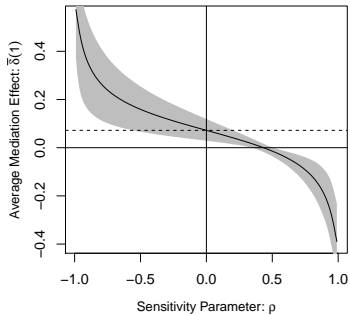
Outcome variables	Product of Coefficients Method	Average Causal Mediation Effect (δ)
Decrease Immigration (ordinal) $\bar{\delta}(1)$.347 [0.146, 0.548]	.105 [0.048, 0.170]
Support English Only Laws (ordinal) $\bar{\delta}(1)$.204 [0.069, 0.339]	.074 [0.027, 0.132]
Request Anti-Immigration Information (binary) $\bar{\delta}(1)$.277 [0.084, 0.469]	.029 [0.007, 0.063]
Send Anti-Immigration Message (binary) $\bar{\delta}(1)$.276 [0.102, 0.450]	.086 [0.035, 0.144]

How plausible is the sequential ignorability assumption?



Conditioning Set:

- Age, education, gender, income.



Here $\rho = 0.43$

Effectiveness of Early Education Interventions

Heckman, Pinto, and Savelyev (2013): The Perry Preschool Program

Effectiveness of Early Education Interventions

Heckman, Pinto, and Savelyev (2013) outcomes: behavioral measures at age 27 and 40.

Causal mediation analysis in Economics

- Heckman, Pinto, and Savelyev (2013)

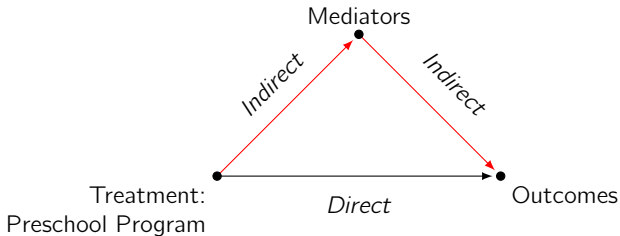
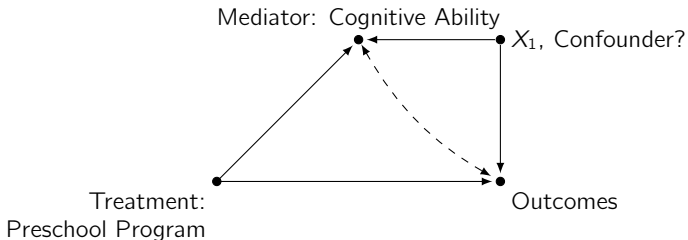


Table : *Estimated Causal Quantities of Interest for Perry Preschool Project.*

		Graduate High School
Average Causal Mediation Effects	$\bar{\delta}(t)$	0.065 [0.003, 0.157]
Average Direct Effects	$\bar{\zeta}(t)$	0.160 [-0.015, 0.339]
Average Total Effect	$\bar{\tau}$.225 [0.045, 0.413]

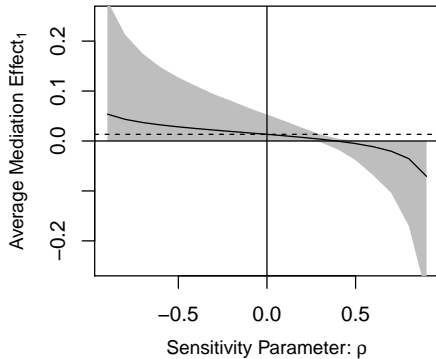
Note: $N = 123$.

How plausible is the sequential ignorability assumption?



Conditioning Set:

- ▷ IQ scores, mother's education, mother working?, father has skilled job, mother's age, father at home?, density of people in household.



Here $\rho = 0.4$

Mediation Critiques in Political Science

- Don Green and Alan Gerber: Don't do it!
- Mediation counterfactuals are metaphysical and best avoided.

Complex Counterfactuals

- Think of a subject that viewed the treatment news story ($t_i = 1$).
- For this person, $Y_i(1, M_i(1))$ is the observed immigration opinion if he or she views the immigration news story.
- $Y_i(1, M_i(0))$ is his or her immigration opinion in the counterfactual world where subject i still viewed the immigration story but his or her anxiety level is at the same level as if they viewed the control news story.

Mediators as Outcomes Analysis

- ▶ Treat mediators as outcomes only.

Implicit Mediation Analysis

- ▶ Deduce patterns through treatment levels or multiple treatments.

Implicit Mediation Analysis: Example

- ▷ Conditional cash transfers

Implicit Mediation Analysis: Example

1. Control
2. Cash Without Conditions
3. Cash With Conditions

Important Guidelines

- ▷ Baseline measures!

Final Matters

See my website for papers and software:

www.personal.psu.edu/ljk20/

Email for comments and suggestions:

ljk20@psu.edu