Experiments

Philosophy of Economics

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Contents

1. Public Goods Experiments
2. Types of Experiments
3. The Role of Experiments

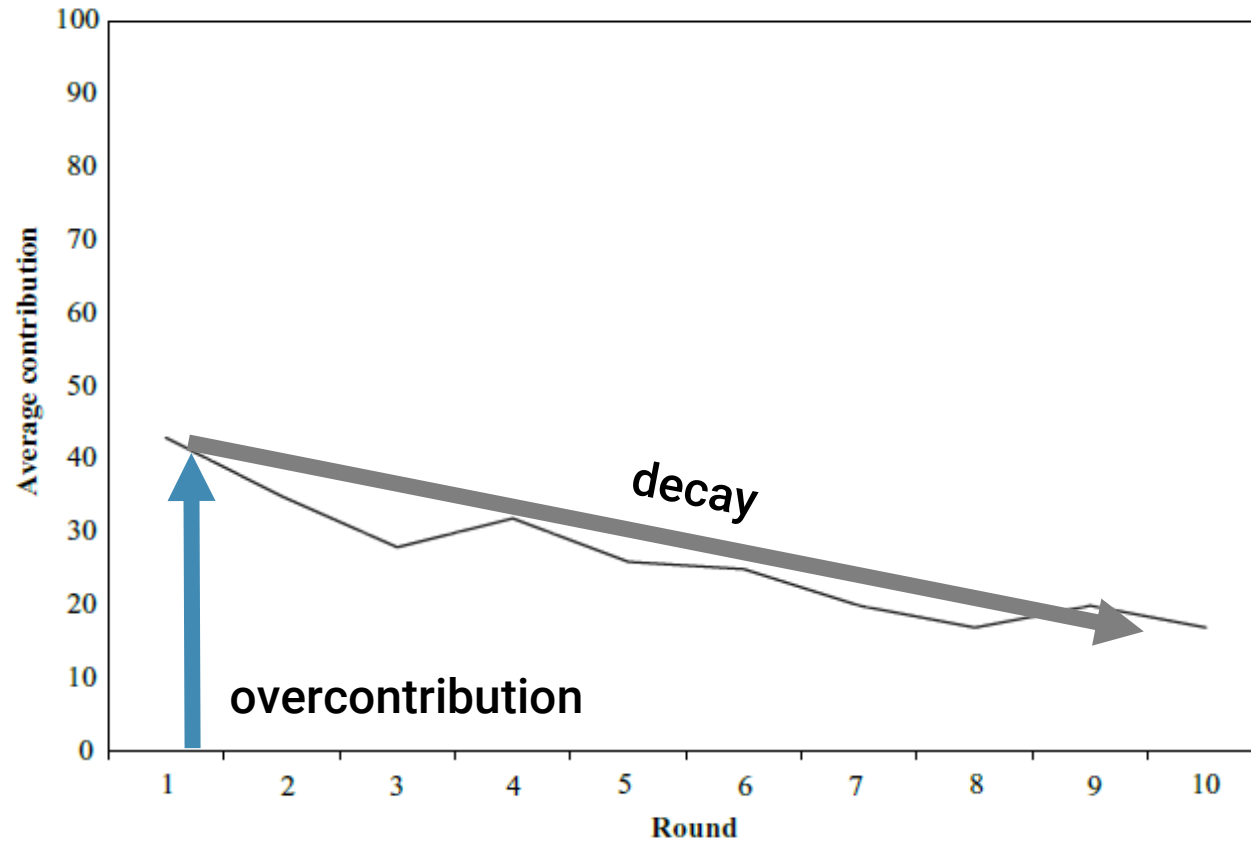# A Standard Finding (Guala 2005, 22)

Figure 2.1. The overcontribution and decay effect (from Isaac, Walker, and Thomas 1984).

- Two standard observations: overcontribution and decay
- Overcontribution contradicts standard economic theory
- Why overcontribution? Why decay?
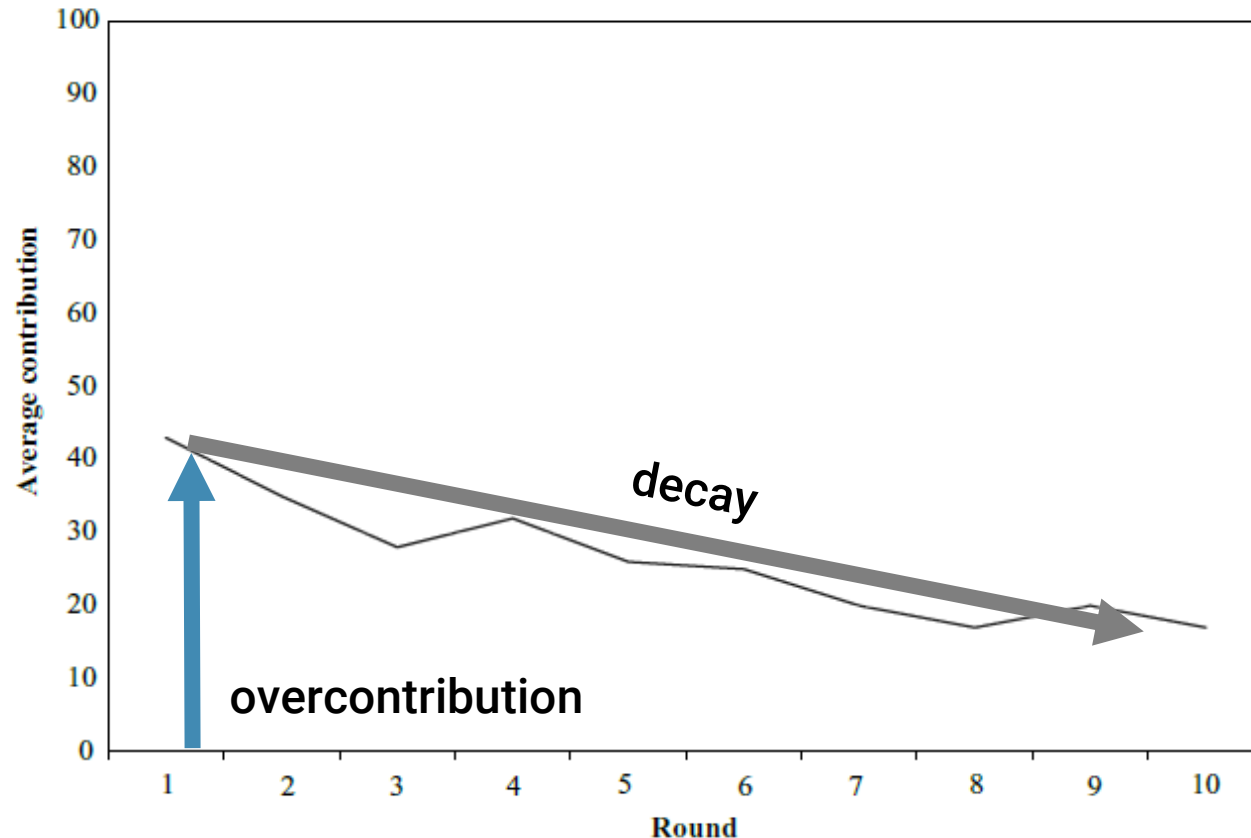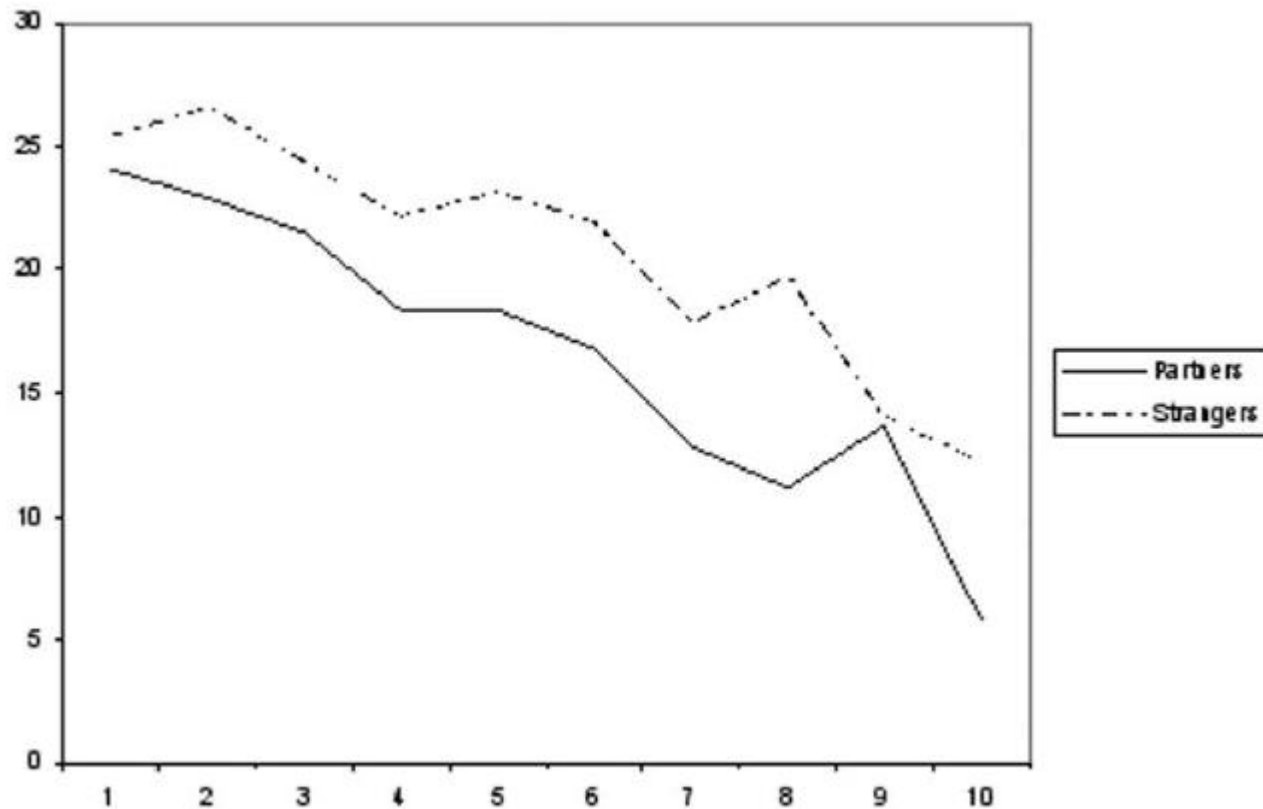
A Standard Finding (Guala 2005, 22)

Figure 2.1. The overcontribution and decay effect (from Isaac, Walker, and Thomas 1984).

Two explanations of decay

- Learning → Decay
  - ❑ Players start out irrational
  - ❑ Over time, players learn what the rational strategy is

- Strategic Playing → Decay
  - ❑ Players know that some of the other players are imperfectly rational
  - ❑ They offer cooperation early on, and defect towards the end of the game

Testing the Strategic Hypothesis

- **Andreoni 1988**: distinguish Strangers from Partners
  - Strangers play with different players each round
  - Partners keep in the same group each round
- How does this test Strategic Playing → Decay?
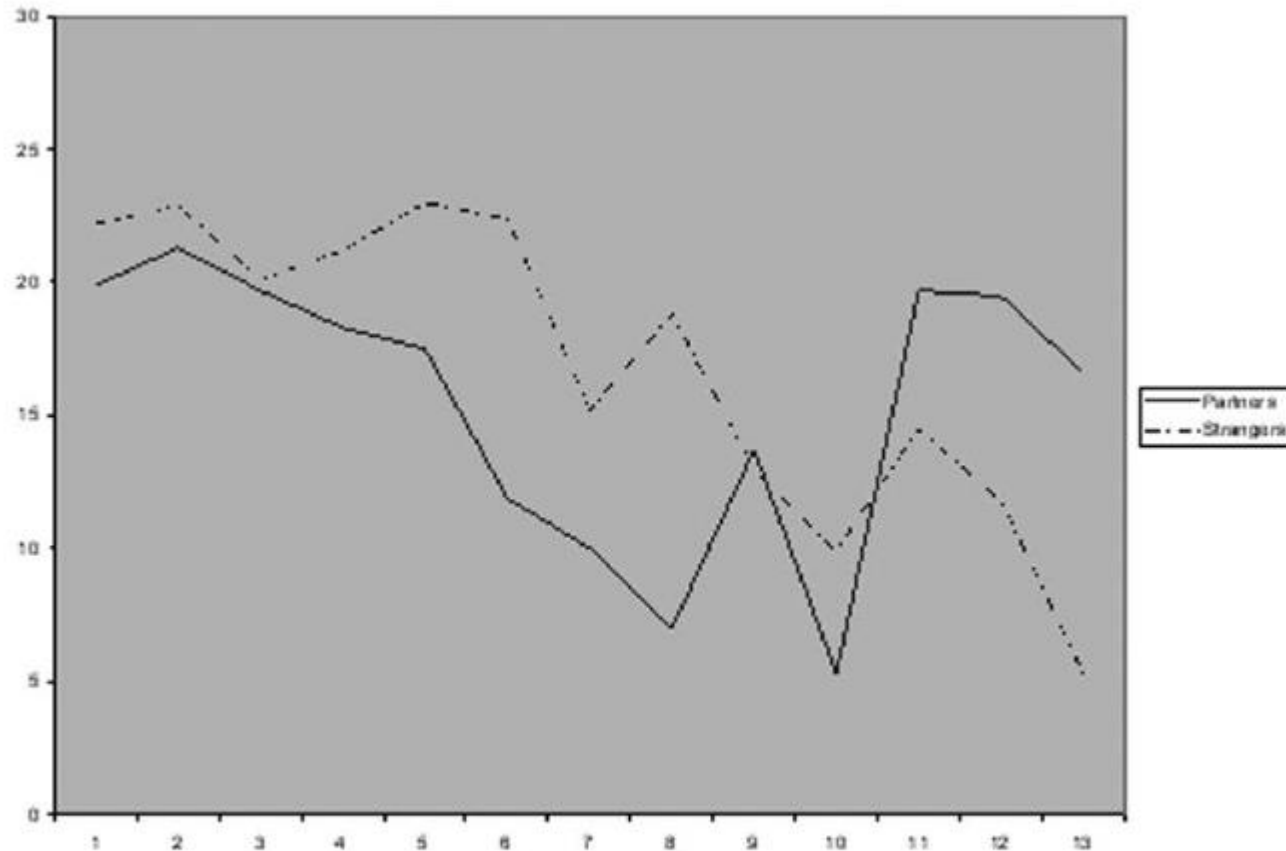
Testing the Learning Hypothesis

Figure 2. Effect of restart at round 10

- **Andreoni 1988**: give players a break at some point, then resume the game
  - Here: break after round 10
- How does this test Strategic Playing → Decay?

Table 1
Percentage of Positive Contributors in the Last Round

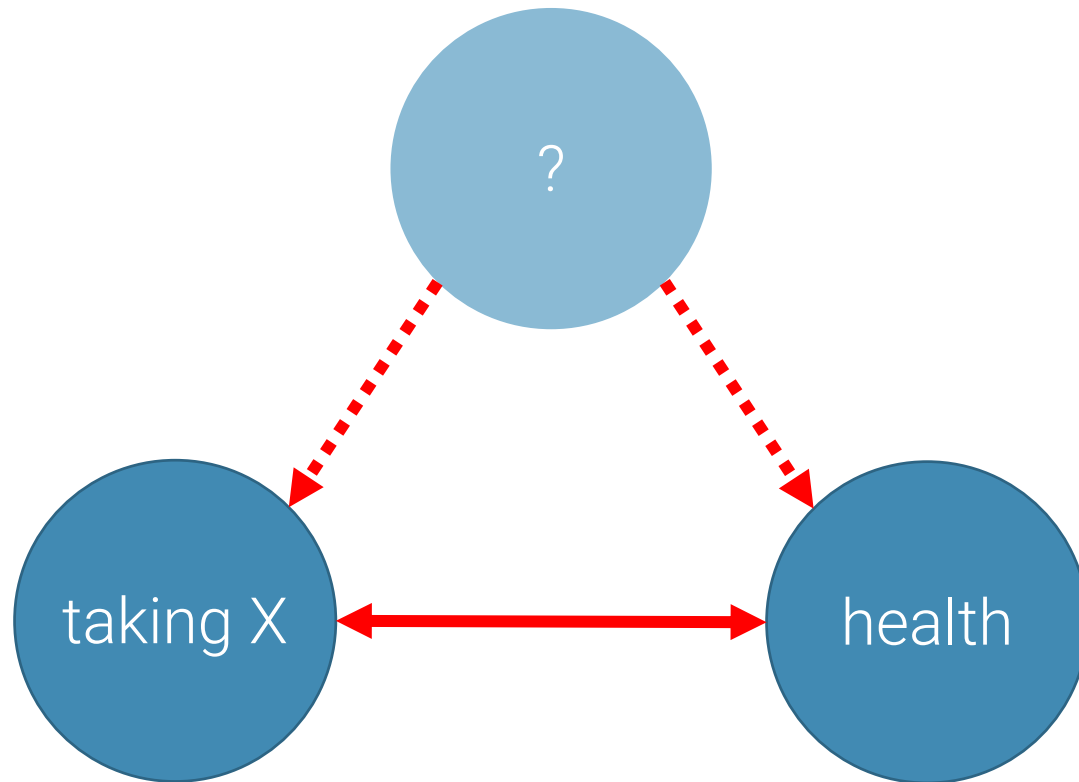| Study	Group Size (n)	Marginal Return (a)	Positive Contributors[a] (Percent)
Andreoni (1988)	5	0.5	44
Andreoni (1995a)	5	0.5	55
Andreoni (1995b)	5	0.5	57
Croson (1996)	4	0.5	35
Croson (forthcoming)	4	0.5	27
Isaac, Walker, and Thomas (1984)	4	0.3	25
Isaac, Walker, and Williams (1994)	4	0.3	31
Keser and van Winden (2000)	4	0.5	44
Laury and Petrie (2005)	4	0.4	38
Ockenfels and Weiman (1999)	5	0.33	11

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Types of Experiments

- Thought Experiments (Hotelling)
- Natural Experiments (Acemoglu et al.)
- Field Experiments
- Lab Experiments (Smith)

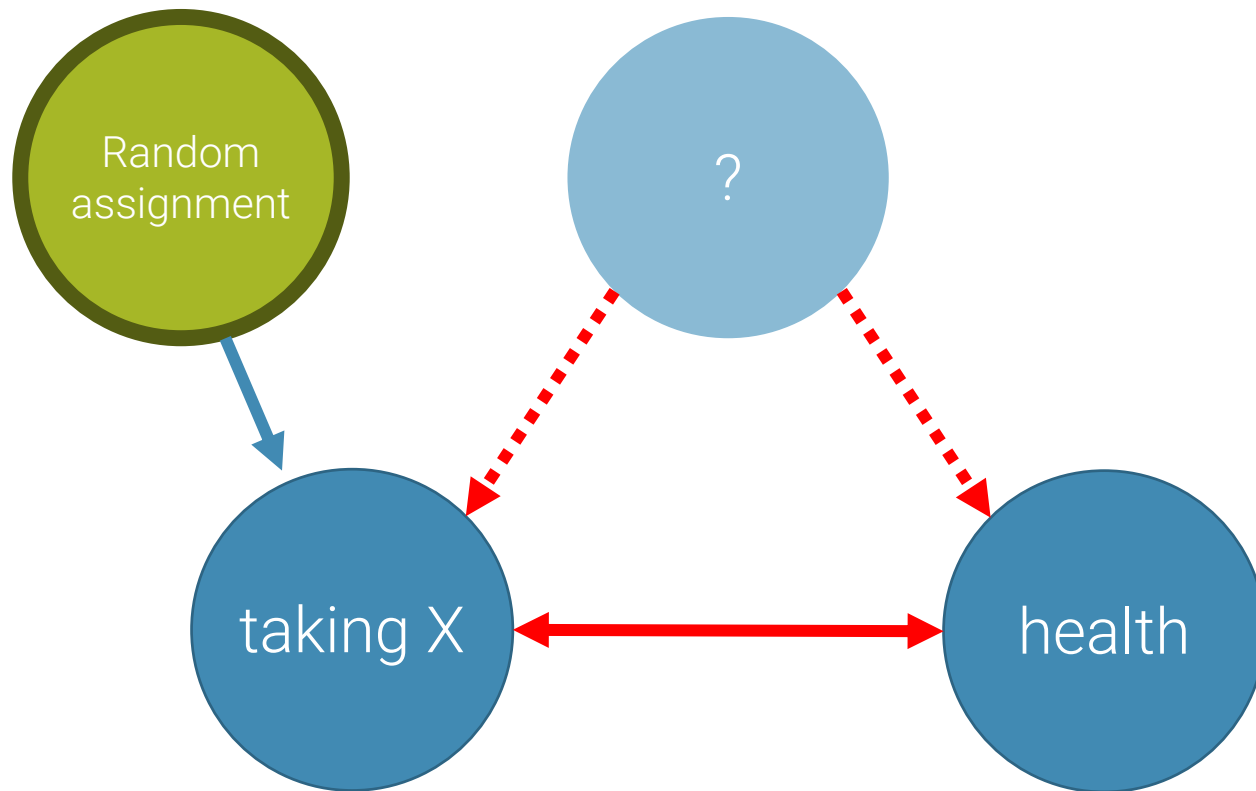What are the differences between these types of experiments?

Experiments

Imagine you want to test whether **taking nutritional supplement X → better health**

Problems
- The people who take nutritional supplements might be more health-conscious, and more healthy to begin with
- Other self-selection effects (older people take more supplements, and they are less healthy)
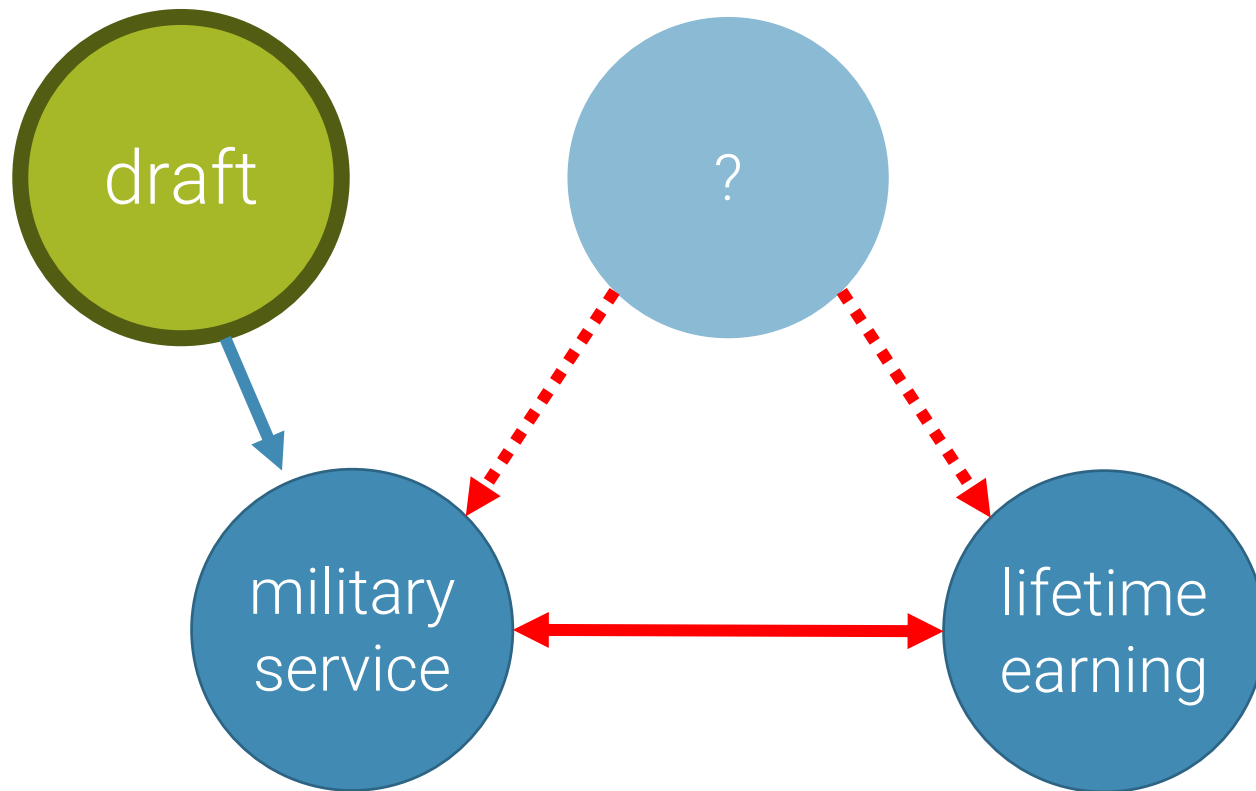
Experiments

Imagine you want to test whether **taking nutritional supplement X → better health**

Solution: assign people randomly to treatment group (variable "treatment")

If done correctly, treatment should be independent from potential third factors

Natural Experiments

Imagine you want to test whether **serving in the military → higher/lower wages as civilian**

Solution: observe a "natural" experiment: the Vietnam-era draft

Other examples…

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Internal and External Validity

Imagine you run some experiment *E* on whether *X* causes *Y*

- **Internal Validity**: Within E, does X cause Y, or can changes in Y be attributed to some third factor not taken into account?

- **External Validity**: Assuming that X causes Y within E, how sure can we be that X also causes Y outside E?

Tradeoff: Higher internal validity requires more control and more artificial conditions; but the more artificial the conditions are, the less certain can we be that results apply outside the experiment.