

Lecture 2: Tools of Positive Analysis

Tools of Positive Analysis

Why is it so hard to judge what's going on in the economy?

For example, in 2006 President Bush proposed cutting labor income tax rates. Some conservatives said this would lead workers to work more; some democrats said work hours don't respond much to tax changes.

Why is there disagreement over whether lowering federal taxes creates meaningful incentives for people to work more? Does it or doesn't it?

THEORY

A model of Lindsey's labor supply:

Lindsey's wage is $w = \$10/\text{hr}$. She has 24 hrs/day to spend on work (L) and leisure (24 - L).

⇒ The cost of leisure to Lindsey is $\$?/\text{hr}$.

Lindsey maximizes the happiness she can get out of consuming bought goods and leisure given her wage. She spends time on leisure until its marginal benefit to her falls below $\$?$, and chooses to spend L hours working.

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Simplicity of the model:

What are we leaving out that might matter to Lindsey's work decision?

Economic models are necessarily abstractions. Their value is in their ability to simplify a problem, so that we focus on its essentials.

"Omission is the beginning of all art" --Lytton Strachey

3 criteria on which to judge a model:

I. Is it plausible? [do you buy its **assumptions**?]

II. Is it informative? [have we simplified the problem enough to learn something? Have we kept the most important features of the problem?]

III. Does it offer **testable implications**?

Economists believe that **(rational) individual utility maximization** is an informative yet conveniently simple foundation for the modeling of individual behavior.

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Now the government imposes a tax on Lindsey's labor income of 20%:

⇒ Her after-tax income is \$?.

How does Lindsey's chosen H react? More work, less work or no change?

This is the crux of our debate. What does theory tell us about the answer?

(a) The tax **cuts the price of leisure** from \$10 to \$8.

Lindsey will want to buy more leisure. This is the **? effect**.

(b) The total amount of money Lindsey can spend on work and leisure in a day has fallen from $10 \cdot 24$ to $8 \cdot 24$. Lindsey is now poorer.

If leisure is a **normal good** for Lindsey, meaning **?**, then this will lead her to buy less leisure (work more) after the tax. This is the **? effect**.

Which dominates?

The prediction of theory is **ambiguous**.

Some ways theory can be helpful:

- I. Provide a framework for thinking about factors that influence the behavior of interest.
- II. Generate useful and testable predictions about behavior.
- III. Inform us of our ignorance – see above.

Hence only empirical work can answer our question in this case.

EMPIRICS

The problem: economists are generally unable to perform **controlled experiments** on the economy.

Consider medical research. We're testing a drug:

- Where do we get our subjects?
- How shall we assign them to treatment and control groups?
- Which group gets the drug? Which the placebo?

Government can change the economic environment in its economy (a treatment), but they have no control economy in which no treatment took place with which to compare outcomes. They are **missing the counterfactual**.

Modern statistical tools have become very important to economists in recent years, because they provide a means of constructing untreated comparison groups (of sorts) from information available on our single economy.

Back to our question: We need to know the **independent effect** of taxes on labor supply, and our attempt to determine it will make use of both theoretical and empirical analysis.

Methods of empirical analysis

Theory organizes our thoughts about what reasons people have for decisions, what empirical knowledge is necessary to answer a question and how the results will be interpreted.

Methods:

0. Interviews

We might ask a group of workers how they chose their hours of work, whether they know their marginal tax rates and whether they have ever changed their work hours in response to a tax change.

What might we miss with this technique?

Economists generally prefer to base research not on what individuals say but on what they do.

Milton Friedman's often-repeated analogy is to pool players: A very good pool player may not have studied physics at an advanced level, but she plays as if she has. An economist might expect workers to in fact behave 'as if' they know their marginal tax rates.

1. Experiments

In order to answer the question of whether vouchers should be used to fund private schooling for public school students, Wisconsin ran an experiment. They asked interested public school students to sign up, and they randomly selected some students to receive vouchers and go to private school and others to remain in public school.

Comparisons were made between the outcomes for kids who got the vouchers and those who didn't. This experiment certainly improves economists' ability to identify an untreated comparison group for the case of vouchers.

What are the limitations of this social experiment?

Over time, some students will drop out of the voucher program. Why is this a problem?

Students can't attend a 'placebo' private school. Why is this a problem?

The experiment is small relative to any general policy that might be implemented. Why is this a problem?

How could we test whether cutting taxes increases workers' labor supply? What problems could we expect?

2. Observational Studies

Let's start with **correlation v. causation**.

3 things must hold in order for us to say government action X causes social outcome Y:

I. X precedes Y.

II. X and Y are **correlated**. [What does "positively correlated mean? What does "negatively correlated" mean?]

III. Explanations other than "X causes Y" for the correlation can be eliminated.

Which is the difficult one?

Where social experiments are costly/illegal/etc., economists turn to observational studies.

[To Power Point observational study & quasi-experimental study slides.]