

Module 6

Lecture 40

Topics

6.4 Recent Developments in Empirical Economics II

6.4.1 Econometrics for macroeconomics and industrial organization

6.4.2 Has the research design pendulum swung too far?

6.4 Recent Developments in Empirical Economics II

6.4.1 Econometrics for macroeconomics and industrial organization

- The developments that we discussed in the last lecture mostly concerned micro econometrics.
- Two major areas which did not embrace these developments are macroeconomics and industrial organization.
- Many macroeconomists moved from traditional empirical work to what is called “computational experiments”.
- In computational experiments researchers build a theoretical economy and calibrate the model using estimated values of some parameters.
- Then they run a computational experiment by changing some model parameters (for example, tax rate or the money supply rule).
- There are a few papers in macroeconomics however which used the standard regression technique with an experimental approach.

- One such example is Romer and Romer (1989) who review the minutes of Federal Reserve meetings and “try to isolate events that look like good monetary policy experiments”.
- They found that monetary contractions have significant and long lasting effects on the real economy.
- Two more recent studies in macroeconomics adopted quasi-experimental research design to understand the effect of macro policies.
- Richardson and Troost (2009) exploited regional differences in Fed behavior during the Depression for studying liquidity effects.
- Velde reported the effects on monetary policy experiments in the context of eighteenth century France.
- Empirical research on growth did not show imaginative research for a long time until recently.
- The key problem of testing the relation between institutions and growth is the issue of endogeneity.
- Good institutions can induce higher growth, but at the same time countries with higher growth can afford to build better institutions.
- Acemoglu et.al. (2001) found a very innovative way to deal with this problem as they used early settler's mortality rate as the instrument variable.
- Their argument was that in places with high mortality rate for settlers (e.g. Africa) Europeans could not settle in large numbers, and consequently they introduced extractive regime.
- On the other hand in places with lower mortality rate (because of favorable disease environment) Europeans settled by a large number and therefore, introduced property right institutions that would induce growth later.
- Hence, in a two stage regression, settler's mortality is regressed on current institutions and (projected) current institutions is regressed on growth.

- Few other studies looked at the sources of growth using some recent empirical strategies we have already seen in the last lecture.
- For example, Rodric and Wacziarg (2005) and Tabellini (2008) investigate interactions between democracy and growth using differences-in-differences type designs.
- Another potential area which neglected recent improvements in empirical economics is industrial organization (IO).
- Even though the effect of merger on pricing policy using new micro econometric tools could be a promising research agenda for IO, it only formed an insignificant percent of recent IO papers (Ashenfelter et. al.)
- The dominant paradigm for merger analysis (also referred to as "new empirical industrial organization") consists of three steps
 1. Estimate a demand system for the product in question.
 2. Postulate a model for market conduct such as Bertrand-Nash price-based competition between different brands or products.
 3. Industry behavior is simulated with and without the merger of interest
- One well cited study that uses this approach to study the effect of merger on prices (Nevo 2000).
- This study is very carefully done. But simulation approach difficult to identify the channel through which merger affects price formation when different theoretical channels are present.
- Hastings (2004) on the other hand uses a direct approach to analyze the effect of the takeover of independent gas station Thrifty by large owner ARCO.
- Hastings research design specifies stations near Thrifty stations as treatment stations and those which were not near a Thrifty station was announced as a control station.
- She then compares prices around the time of the merger using a difference in difference strategy.
- Which approach does render better result in IO?

- Hausman and Leonard's analysis tried to answer this question by contrasting direct (difference in difference based) approach with indirect approach (simulation based).
- They conclude that one of their three structural models produces estimates "reasonably similar" to the direct estimates.
- Peters (200) and Ashenfelter and Hosken (2008) also reported considerable difference between results yielded by these two approaches.
- There is no clear cut answer whether simulation based studies yield better results than direct (research design based) approach. The results are at best mixed.

6.4.2 Has the research design pendulum swung too far?

- The main criticism against the research design paradigm is that design based studies have become narrow or idiosyncratic.
- These issues have been raised by a number of authors including Heckman (1977), Rosenwig and Wolpin (2000), Heckman and Urzua (2009) and Deaton (2009).
- Their main objection is that empirical evidence provided in these studies are local, derived from a particular time, place and research design. It is difficult to know how much we can generalize these results.
- One constructive response to this criticism is to look for more research design based studies so that a general picture may emerge.
- For example, to get the effects of military service Angrist has repeatedly estimated that with the veterans of World War II, the Vietnam Era, the first Gulf War and periods in between.
- He found that in general, military service tends to depress civilian earnings which is theoretically meaningful and empirically consistent.
- Accumulation of such studies is the key to establish the general validity of results obtained from design based studies.

- The class size-academic performance literature followed the same strategy. A number of studies (Krueger, 1999; Angrist and Lavy, 1999; Rivkin, Hanushek and Kain, 2005) produced a remarkably narrow range for the estimates thus confirming the generalizability of the result.
- Across these studies, a ten students reduction in class studies, a ten student reduction in class size produces about 0.2 to 0.3 standard deviation increase in individual test scores.
- Another related critique is that experimentalist paradigm look for good experiments often ignoring the importance of the research questions in real life.
- Sceiber (2007) argued that young economists have turned away from important questions like poverty, inequality and unemployment to study behavior on television game shows.
- Raj Chetty comments \People think about the question less than the method...so you get weird papers, like sanitation facilities in Native American reservations"
- On a similar line James Heckman voices an even stronger opinion: \In some quarters of our profession, the level of discussion has sunk to the level of a *New Yorker* article."
- However, Angrist and Pischke maintains that even if some studies focus on apparently obscure issues (e.g. Oettinger (1999) analyzes stadium vendors' reaction to wage changes driven changes in attendance) their result can be generalized to a bigger market scenario (general labor market)
- In an experimental set up, Karlan and Zinman (2009) tried to distinguish moral hazard from adverse selection in consumer credit market. First, potential borrowers were offered different interest rates before they applied for loans. Their initial response to variation in interest rates is used to gauge adverse selection. Secondly, some of the customers who took loans were then offered lower rates than the rates initially offered. This variation is used to identify moral hazard in a sample where everyone has committed to borrow.
- Besides these, there are studies which use design based methods to answer bigger questions. For example, Nunn (2008) uses a wide range of historical evidence, including sailing distances of common trade routes to estimate the long run growth effects of the African slave trade.

- Deschenes and Greenstone find the effect of climate change on energy use and motility by using random year to year fluctuations.
- We can summarize this lesson by saying that the criticism made by Leamer in 1983 was well received in economics and micro-econometrics went through a credibility revolution which mostly embraced better design based studies.