

# Research and Teaching Overview

Nirav Mehta

- ▶ I've been at Western since 2011
- ▶ I'm an applied/labor econometrician
  - ▶ MO: I use economic theory to interpret data
  - ▶ Mostly using the **Structural Microeconomic** approach
- ▶ Main areas:
  - ▶ Empirical contracting
    - ▶ empirical research about moral hazard and adverse selection models
  - ▶ Public/Labor economics
  - ▶ Health economics
  - ▶ Economics of education

# My Specializations

- ▶ It can be hard to figure out who to talk/work with
- ▶ Come talk to me if (but not only if!) you're interested in...
  - ▶ Health Economics
  - ▶ Economics of Education
  - ▶ Empirical Contracts
    - ▶ This includes Auction models!
  - ▶ Network / Social Interaction Models
  - ▶ Developing your own Applied Methods ideas

# Teaching: 9622: Topics in Health and Education, and Empirical Contracts

- ▶ This course examines how to answer public policy questions using empirical research, with a focus on structural microeconomic work.
- ▶ Focus on empirical contracts, with a special application to education and health economics, as well as insurance markets more generally.
  - ▶ **Also, if you're interested in *health* you should take this course!**
- ▶ Note that we can work together even if you haven't taken this course!

## Teaching: 9622 (cont.)

- ▶ We also cover many papers that have unique, underexploited, public-use datasets
  - ▶ Great place to get ideas, e.g., prev. students:
    - ▶ RAND HIE to estimate demand for medical inputs to health production, learning about characteristics of health insurance plans
    - ▶ Muralidharan and Sundararaman 2011: group vs. individual teacher incentive pay
    - ▶ Oregon Health Insurance Experiment, other papers available!

# Research

I'll provide some examples of projects I've worked/am working on. . .

# Optimal Contracting with Altruistic Agents: Medicare Payments for Dialysis Drugs

- ▶ Optimal Contracting with Altruistic Agents: Medicare Payments for Dialysis Drugs with Gaynor and Richards-Shubik. *American Economic Review*, 113(6), 1530-1571, 2023.

# Optimal Contracting with Altruistic Agents: Medicare Payments for Dialysis Drugs

- ▶ Optimal Contracting with Altruistic Agents: Medicare Payments for Dialysis Drugs with Gaynor and Richards-Shubik. *American Economic Review*, 113(6), 1530-1571, 2023.
- ▶ Most literature on physician incentives: “Incentives matter.”
- ▶ **Our goal:** Estimate physician preference parameters governing altruism versus valuation of remuneration.
- ▶ We build a model of physician treatment choices.
- ▶ What’s the **informational asymmetry**? Physician altruism and cost types are private information.
- ▶ The model takes as an input a contract specifying payment in terms of treatment choice.
- ▶ Use data from existing contracts and physician treatment choices to identify structural parameters.
- ▶ We can then solve for the optimal contract (i.e., the second best) you learned about in contract theory (nonlinear pricing at Costco) and compare it with the ones in the data.

# Contracting in Education

- ▶ How/whether should we pay teachers based on observed measures of output?
- ▶ Again, most of the literature in this area tries to *document* whether incentive schemes affect teacher behavior (positive)
- ▶ But wouldn't it be really interesting to figure out how incentive schemes *should* be structured? (normative vs. positive)

# Measuring Teacher Quality

- ▶ Measuring Quality for Use in Incentive Schemes: The Case of “Shrinkage” Estimators. *Quantitative Economics*, 10(4), 1537-1577, 2019.
- ▶ I consider the performance of the most commonly used ways of estimating teacher performance (quality)
  - ▶ Call them estimators  $M_1$  and  $M_2$ .
  - ▶  $M_1$  is a teacher fixed effect.
  - ▶  $M_2$  is a Bayesian estimator (weighted avg. of  $M_1$  & prior mean)
    - ▶ Weight is increasing in sample size (i.e., number of students assigned to teacher)
    - ▶ The vast majority of existing teacher incentive schemes use  $M_2$  because economists told education policymakers that variance is something we ought to reduce.
    - ▶ I then compare the performance of these estimators under different scenarios for economic primitives **using an economic, not statistical, objective**

# Social Interactions: Input choices on social networks

- ▶ Social Interactions, Mechanisms, and Equilibrium: Evidence from a Model of Study Time and Academic Achievement, with Tim Conley, Ralph Stinebrickner, and Todd Stinebrickner. *Journal of Political Economy*, 2024.
- ▶ We study a mechanism underlying documented “social interactions in academic achievement”: Study effort
- ▶ Develop a model of input choices on a social network, estimate the model parameters (e.g., production function mapping study effort to academic achievement) using data from the Berea Panel Study
- ▶ Use the model to document rich heterogeneity in effects of input choices that propagate across the social network

## Social Interactions: Ability tracking

- ▶ Ability Tracking, School and Parental Effort, and Student Achievement: A Structural Model and Estimation (with Chao Fu). *Journal of Labor Economics*, 36(4), 923-979, 2018.
- ▶ Relates to a vast literature on social interactions: How much do peers affect outcomes, like achievement?
- ▶ Develop an estimable model endogenizing ability tracking regimes and the ensuing choices by parents, fit the model using ECLS-K data, using MLE.
- ▶ Key ingredients: schools choose how to organize students (determining the input peer composition), parents choose their own costly input (parental effort) in response, student achievement depends on both school and parental inputs
- ▶ With the model we can do much more than you could do with an experiment: Can estimate the effect of *allowing* tracking.
- ▶ Behavioral responses of parents are huge. We'd get the answer about 100% off by ignoring them.
  - ▶ This may help explain why it's hard to detect an "effect" of tracking.

# Some Other Projects (Complete and Active!)

## ► Education

- Competition in Public School Districts: Charter School Entry, Student Sorting, and School Input Determination. *International Economic Review*, 58(4), 1089-1116. 2017.
- A Quantitative Theory of Teacher Quality: Evidence from a Dynamic Structural Model Estimated using an Incentive Pay Experiment (working paper)

## ► Health

- Multidimensional Health Capital and the Production of Health (working paper; joint with Tian Liu and Seth Richards-Shubik)
- Optimal Contracting with Multitasking Agents (in progress; with Seth Richards-Shubik)

## ► Misc. Methods

- An Economic Approach to Generalizing Findings from Regression-Discontinuity Designs. *Journal of Human Resources*, 54(4), 2019.