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Course Review

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Spring 2015

Part 1: Autor

Decomposition Techniques

- Analysis of wage distributions requires new 'metrics
- Oaxaca-Blinder decomposition for mean differences
 - DiNardo, Fortin, and Lemieux (1996) extend to densities
 - In both, order of decomposition matters
 - Intrinsically partial equilibrium (β 's are independent of X 's)
- Conditional quantile regression: $Q_Y(\tau|X) = X'\beta \iff F_Y(X'\beta|X) = \tau$
 - Unlike OLS, QR doesn't describe unconditional effects
 - Machado and Mata (2005): integrate up QR by $\widehat{f(X)}$
 - Firpo, Fortin, and Lemieux (2009): model recentered quantile influence function as linear
- Big Picture: partial equilibrium nature undesirable, but a natural place to start (and increasingly widely-used)

Stylized Inequality Facts

- U.S. returns to schooling fell in the 1970s, rose sharply in the 1980s, and slowed (but did not reverse direction) in the 1990s
- Real median household income has been flat or falling since the '90s
 - Distribution has “fanned out:” 10th pctlc has been flat or falling since '70s, 50th flat or slightly rising, 90th rising sharply
 - Avg. real male wages falling; female wages steady or growing
 - Rising concentration: top 0.1% earns $\approx 12\%$ of total national income
 - Similar trends in the UK and other OECD countries
- Rising supply of educated workers. HS completion rate flat after 1950s with women steadily outpacing men
- Polarization in employment: professional/technical/managerial employment growing while production/administrative/laborer education falling
- Big Picture: many trends are difficult to explain with canonical models

Job Loss and Job Search

- Jacob, LaLonde, and Sullivan (1993) puzzle: substantial and persistent earnings losses from displacement (early D-in-D)
 - Larger losses when workers leave a sector or a large firm
 - Jacobsen and Von Wachter (2009) mortality follow-up
 - Davis and Von Wachter (2011): higher losses in recessions
 - Jarosch (2014): separation leads to subsequent separation
- Labor market congestion may be bad for job seekers
 - Lalive, Landais, and Zweimüller (2015): massive extension of Austrian UI had externality on non-eligible unemployed
 - Crépon et al. (2013) model: displacement effects if changing search efforts leads to change in labor market tightness
- Big Picture: “local” conditions to job loss may have large effects on individuals and the larger labor market

The Canonical Model

- Two-factor CES model: $Y = [(A_L L)^\rho + (A_H H)^\rho]^{1/\rho}$ for $\rho \leq 1$
 - Elasticity of substitution: $\sigma = \frac{1}{1-\rho} \geq 0$, substitution increasing in ρ
 - $\ln(w_H/w_L) = \rho \ln(A_H/A_L) - (1-\rho) \ln(L/H)$; “demand” and “supply”
- Katz and Murphy (1992): estimate $\hat{\sigma} = 1.41$, but overpredict late 1990s, cannot explain job polarization, convexification of schooling returns, or declining real wages
 - Card and Lemieux (2001): nest education cohorts within skill groups; slowdown of increased education among young flattened supply
 - Carneiro and Lee (2011): suggest declining skill in average college-goer as educational attainment increased
- Big Picture: a flexible and surprisingly robust framework for analyzing (some) aggregate inequality trends

The Task Framework

- Acemoglu and Autor (2011): $\ln Y = \exp \int_0^1 \ln y(i) di$ for task production $y(i) = A_L \alpha_L(i) l(i) + A_M \alpha_M(i) m(i) + A_H \alpha_H(i) h(i)$
 - Comparative advantage, law of one price, and no arbitrage imply wage premiums with “endogenous” task thresholds:

$$\frac{w_H}{w_M} = \left(\frac{1 - l_H}{l_H - l_L} \right) \left(\frac{H}{M} \right)^{-1}$$

$$\frac{w_M}{w_L} = \left(\frac{l_H - l_L}{l_L} \right) \left(\frac{M}{L} \right)^{-1}$$

- Can model declining real wages, skill-replacing technological change
- Gathman and Schoenberg (2010): job changers may lose task-specific capital when changing jobs
- Big Picture: differentiating skills and tasks extends Tinbergen / Katz-Murphy framework to explain recent trends

Organizational and Market Structure

- Autor, Levy, and Murnane (2003): “skill bias” of recent technical change non-monotonic: substitutes for routine tasks
- Dessin and Santos (2006): tradeoff between adapting to local conditions and *ex ante* coordination. Division of labor increases static efficiency but misses adaptive gains (optimal bundling non-monotone)
- Rosen (1981) / Terviö (2008): indivisibilities and “superstars”
- Terviö (2009) / Pallais (2012): inefficiency in talent discovery
- Big Picture: institutional details about the organization of labor/tasks may have large descriptive and efficiency consequences

Ricardian Models of Trade

- Canonical (Heckscher-Ohlin) models of trade are driven by differences in factor intensities (endowments); predictions often fall short
 - No factor price equalization
 - Country size and distance seem important
- Eaton and Kortum (2002): comparative advantages drawn from Fréchet distribution; “iceberg” trading costs vary by distance
 - Leads to “gravity” formula for trade: increasing in sizes, total purchases, declining in bilateral trade cost
 - Larger countries trade less because larger shares of labor depress wages
 - Iceberg costs create linkage between trade deficits and wages
 - Autor, Dorn, and Hanson (2013): use EK’02 to link exogenous rises in productivity in China to goods demand in local commuting zones
- Big Picture: a succinct, closed analysis of comparative advantage in a full GE setting (but with strong distributional assumptions)

Part 2: Williams

Roy Selection

- Workers self-select into occupations on anticipated gains (Roy, 1951)
 - Should be able to derive using LIE and key normal facts (linear conditional expectations, Inverse Mills ratio)
 - Positive selection: “movers” have higher-than-average latent wages in both sectors (also negative selection, “refugee” selection)
- *Tons* of varied empirical applications (with different techniques)
 - Abramitzsky, Bouston, and Eriksson (2012): Norwegian mass-migration
 - Chandra and Staiger (2007): selection on gains and productivity spillovers generating multiple equilibria in health care
 - Mulligan and Rubenstein (2008): Selection in closing gender wage gaps
 - Kirkebøen, Leuven, and Mogstad (2014): Comparative advantage in the returns to field of study
- Big Picture: central notion to labor, with a close link to empirics

Equalizing Wage Differentials (Rosen, 1974; 1976)

- Labor market transactions a tied sale of services and job attributes
- Discrete model: worker utility $U_i(C, D)$, firm profit $\Pi_j = a_{Dj}L - W$
 - Distributions of $Z_i \equiv C_i^* - C_0$, where $U_i(C_i^*, 1) = U_i(C_0, 0)$, and $B_j \equiv a_{1j} - a_{0j}$ pins down equilibrium wage
 - Assortative matching; wage differential determined by marginal individual (may generate rents)
- Continuous model: $-U_{Di}(C^*, D^*)/U_{Ci}(C^*, D^*) = W'(D^*)$ (workers) and $f_{Dj}(D^*) = W'(D^*)$ (firms) determines shape of compensating difference function (“kissing equilibrium”)
- Empirics: tricky if both workers and firms and heterogeneous
 - Observational estimates: Lucas (1977), Brown (1980)
 - Policy variation: Summers (1989), Gruber (1991-1997)
- Big Picture: powerful theory, tricky identification

Taste-Based and Statistical Discrimination

- Becker (1957): firms maximize $pF(N_b + N_w) - w_w N_w - w_b N_b - dN_b$
 - Goldberg (1982) “nepotism” reframing can explain why prejudiced firms aren’t bought out of the market
 - Black (1995) shows how search can magnify discrimination
- Aigner and Cain (1977): firms extract productivity signals
 - With lower group mean productivity, the same signal will result in (uniformly) lower wages
 - With higher group variance, wages will rise less fast in the signal
 - Equal pay for equal expected productivity: Lundberg and Startz (1983) consider alternative “endogenous” discrimination definition
- Empirics: regression analysis (Goldberger, 1984; Neal and Johnson, 1996), audit studies (Bertrand and Mullainathan, 2004), quasi-experiments (Goldin and Rouse, 2000)
 - Testing between models: Chandra and Staiger (2010) argue taste-based discrimination predicts larger marginal benefits from treating minorities (in statistical discrimination, differential “hurdles” are optimal)

Intergenerational Mobility

- Becker and Tomes (1979): parents altruistically invest in their children
 - Simultaneous inheritance of ability makes intergenerational elasticity hard to interpret economically (Goldberger (1989) criticism)
 - Solon (1999): B-T very parametric in nature, ignores assortative parental matching, quality/quantity tradeoffs
 - Gelber and Isen (2011) test “offsetting” theory with Head Start
- Measurement issues: would like to regress permanent income
 - Lifecycle bias (Haider and Solon, 2006): large attenuation bias from measuring child's earnings when young, even though it's on the LHS
- Adoption studies: attempt to distinguish nature v. nurture
 - Sacerdote (2007): quasi-experimental adoption of Korean-Americans; looks at effect of (bundled) “treatment” of different types of families
- Black, Devereux, and Salvanes (2005): DD-IV showing minimal intergenerational education transmission
- Big Picture: mixed evidence on an increasingly high-profile question

Early Childhood Determinants of Long-Run Outcomes

- Heckman (2007): $h = A[\gamma I_1^\phi + (1 - \gamma)I_2^\phi]^{1/\phi}$; if $\phi < 1$, shocks from different baseline investment levels have heterogeneous effects
 - Costs of shocks understated if there are compensatory investments
- Birth weight: Behrman and Rosenweig (2004), Almond, Chay, and Lee (2005), and Black, Devereux, and Salvanes (2007) use twin/sibling FEs
 - Almond et al. (2010) (U.S.) and Bharadwaj, Loken and Nielson (2011) (Chile and Norway) use RD around birth weight of 1500 grams
- Head Start: Currie and Thomas (1995) use sibling FEs, Ludwig and Miller (2007) use RD on initial county rollout
- Foster care: Doyle (2007) uses “examiner design” and MTEs to characterize potentially-heterogeneous effects
- Big Picture: evidence (from a variety of cool 'metrics) for strong complementarities in childhood investments

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