

Lectures 11+12 outline: Wage Distribution, Sorting, and Mobility

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Wage skewness

Why are earnings distributions skewed?

- Examples of wage distributions
- Pareto's observation: log-log plot of income density is a line
 $\rightarrow F(w) = 1 - (w/w_0)^{-\alpha}, \alpha > 1$
 - generating processes, e.g. Champernown (EJ 1953)
- Scale-of-operations / span-of-control effects
 - Mayer (REStat 1960), e.g. Lucas (BellJE 1978)
- Complementarity effects
 - Matching models, e.g. assignment models in Sattinger (JEL 1992)
 - Team production, e.g. Kremer's O-ring theory (QJE 1993)
- Interaction with learning models (within-cohort skewness)
- Uncertainty, risk preferences
- Selection effects [Roy model in next lecture]

Wages and heterogeneous ability

Assignment models: matching with full information

- Many-sided heterogeneity. e.g. worker ability a , firm productivity b
- Production function at the level of a "match" $y(a, b)$
 - Output produced by matching in fixed proportions (1:1, 1: n , ...)
- Economic question: equilibrium matching and incomes, distributional spillovers
- There is no equalization for the prices of embedded factors
- $y_{ab} > 0 \rightarrow$ positive assortative matching $\rightarrow$ skewing incomes
- Ricardo's land rent model a special case where one side homogeneous

Trends in wage distributions

- Stylized facts across countries. Most up-to-date survey in Roine and Waldenström (2015)
- Skewness U-curves over time, esp. in the Anglosphere
 - Driven by earnings not capital income
 - Driven by top vs rest, rather than middle vs bottom.
US top 1% share from 10% to 20% in 40 years
 - Is Continental Europe different or at an earlier phase?
- Top 1% inequality vs within 99% inequality
Earnings gap between median college and HS-only households grew 4 times more (28 k\$) than their share loss of 99% to top 1%
 - See Science Magazine special section, No. 6186 (2014). Autor, etc.
- Returns to education over time
- Polarization

Why are earnings distributions getting more skewed?

(In OECD since 1970s) Some arguments

- Supply and demand: "the race between education and technology"
 - slowdown in supply of useful skills
 - acceleration of demand for top skills
- Technological change [Three lectures from now] or composition effects?
- Lower transport costs → trade and offshoring [Two lectures from now]
- Performance pay.
Lemieux, MacLeod and Parent (QJE 2009)
- Taxation, norms. -Piketty
- Institutions, e.g. U.S. de-unionization

Roy Model

(Roy 1951, Borjas 1987)

- Optimal self-selection to two occupations
- Bivariate normal distribution of latent (log) wages x, y
- Potential outcomes $\leftrightarrow$ "selection biases"

$$\begin{bmatrix} x \\ y \end{bmatrix} \sim N \left(\begin{bmatrix} \mu_x \\ \mu_y \end{bmatrix}, \begin{bmatrix} \sigma_x^2 & \rho\sigma_x\sigma_y \\ \rho\sigma_x\sigma_y & \sigma_y^2 \end{bmatrix} \right) \quad (1)$$

"selection biases" solved in terms of bivariate parameters and std normal CDF Φ and PDF ϕ because

$$E[u|u > z] = \frac{\phi(z)}{1 - \Phi(z)} \quad (2)$$

Intergenerational mobility

- IG mobility $y_{child} = \alpha + \beta y_{parent} + \varepsilon$
 - measurement: lifetime vs snapshot
- Log-income mobility vs quantile mobility
 - copula vs marginal distributions
- Adoptee studies - e.g. Björklund, Lindahl and Plug (QJE 2006)
- Surname-dynastic approach - Gregory Clark
- The Great Gatsby curve? Corak (JEP 2013)
- Trends in IG mobility not clear (anymore)

Becker-Tomes model

- Parent-child transmission (altruistic motive)
 - exogenous human capital endowment
 - optimal investment to human capital
 - borrowing possible
- Extension to imperfect borrowing
- Outcome: steady state IG correlations
 - parents income matters for earnings conditional ability
 - helps interpret IG income regressions

- Within-lifetime income mobility
 - Kopczuk et al (QJE 2010)
- Mobility between occupations
 - Groes, Kircher, and Manovskii (RES forthcoming).