Discussion of “MisMatch in Human Capital Accumulation”

Lutz Hendricks

UNC

April 18, 2017
Mismatch

Order individuals according to their individual specific return to college, $\theta$.

No mismatch: perfect sorting by $\theta$

- Set a cutoff $\bar{\theta}$
- All persons with $\theta \geq \bar{\theta}$ go to college.
- All others do not.

Deviation from perfect sorting is “mismatch.”
Why is this hard?

For each person, we need to compare

- $Y_{HS,i}$: (lifetime) earnings as a high school graduate
- $Y_{coll,i}$: (lifetime) earnings as a college educated worker
- $\theta_i \propto Y_{coll,i} - Y_{HS,i}$

Observable:

- $Y_{coll}$ for those who choose college
- $Y_{HS}$ for those who don’t

Need to impute:

- $Y_{HS}$ for those who choose college
- $Y_{coll}$ for those who don’t
Does this look familiar?

The literature on selection bias in the return to college tackles the same problem.

An old literature with mixed results (Willis and Rosen, 1979; Carneiro et al., 2003; Cunha and Heckman, 2007)

What is different here?

1. **Less data** available.
   The literature has data on family background, pre-college test scores, in college performance, college graduation or dropout status, earnings histories, ...
   Here, we only have post-college test scores, college entry decisions, and a regression coefficient (wage on test scores).

2. **Stronger assumptions** and functional forms.
Cunha and Heckman (2007)

Data we only observe them in either one or the other state. Their evidence shows that the assumption of perfect dependence across components of counterfactual distributions that is maintained in much of the recent literature (e.g. Juhn et al., 1993) is far too strong.

Fig. 1. Densities of present value of lifetime earnings for High School Graduates. Factual and Counterfactual NLSY/1979 Sample. Present Value of Lifetime Earnings from age 18 to 65 for high school graduates using a discount rate of 3%. Let $Y_0$ denote present value of earnings in high school sector. Let $Y_1$ denote present value of earnings in college sector. In this graph we plot the factual density function $f(y_0 | S=0)$ (the solid line), against the counterfactual density function $f(y_1 | S=0)$. We use kernel density estimation to smooth these functions.

Fig. 2. Densities of present value of earnings for College Graduates, Factual and Counterfactual. NLSY/1979 Sample. Present Value of Lifetime Earnings from age 18 to 65 for college graduates using a discount rate of 3%. Let $Y_0$ denote present value of earnings in high school sector. Let $Y_1$ denote present value of earnings in college sector. In this graph we plot the counterfactual density function $f(y_0 | S=1)$ (the dashed line), against the factual density function $f(y_1 | S=1)$. We use kernel density estimation to smooth these functions.
Mismatch in Hendricks and Leukhina (2017)

One result from the literature on selection.

Key features:

1. College transcripts: additional information on abilities and incentives to persist in college.
   (from High School & Beyond PETS)

2. Dropout decisions: important for incentives.

Result:

- over-match: 4%
- under-match: 0.3%

How many low ability students do graduate: 0.0%
How many high ability students fail to graduate: 3.5%

