Recitation 11: Discrimination

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Outline

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Taste-Based Discrimination: Becker 1957

- "Taste for discrimination": employers get disutility from hiring women, f, but not men, m
- Employers maximize their utility, which is profit minus a cost for employing women

$$U = pF(N_m + N_f) - w_m N_m - w_f N_f - dN_f$$

  - p is the price of the good that the firm makes
  - F is the production function of the firm
  - w_x is the wage for group x
  - N_x is the number of employees of group x
  - d is the taste-based discrimination parameter

Taste-Based Discrimination: Wage Discrimination

- Employers solve

$$\max_{N_m, N_f} pF(N_m + N_m) - w_m N_m - w_f N_f - dN_f$$

- First–order conditions

$$pF' = w_m \text{ and } pF' = w_f + d$$

- Prejudiced employers ($d > 0$) only hire women if

$$w_m \geq w_f + d$$

  - Why? Women and men are perfect substitutes in production, and the effective women's wage for prejudiced employers is $w_f + d$. If they hire women, men's wages must be at least as high as this effective wage for women.

Taste-Based Discrimination: Implications

- Suppose that different employers have different values for d
- If there are a lot of prejudiced employers ($d > 0$), then:
  - There are women who work for prejudiced employers
  - There is a wage gap for these women: $w_f = w_m - d$
  - If markets are competitive, then non–prejudiced employers will grow (because they can arbitrage the wage gap)
  - If markets are competitive, prejudiced employers will make less profit

Statistical Discrimination: Aigner and Cain (1977)

- Distinct from taste-based discrimination
- Employers observe a noisy measure, y, of true productivity, q
- Thus employers may want to use observable characteristics (e.g., gender) to infer expected productivity (assuming productivity is correlated with gender)
- A simple case:

$$
\begin{aligned}
y &= q + u \\
q &\sim N(\alpha, \sigma_q^2) \\
u &\sim N(0, \sigma_u^2) \\
q &\text{ and } u \text{ are independent}
\end{aligned}
$$

Statistical Discrimination: Wage Discrimination

- Employers infer average productivity q based on measure y

$$E(q|y) = (1-\gamma)\alpha + \gamma y$$

with $\gamma = \frac{\sigma_q^2}{\sigma_q^2+\sigma_u^2}$

  - Comes from property of bivariate normal distribution

- Suppose that women are more productive than men: specifically, $q_f \sim N(\alpha_f, \sigma_q^2)$ and $q_m \sim N(\alpha_m, \sigma_q^2)$ with $\alpha_f > \alpha_m$
- Suppose employers pay workers their expected productivity: a man and a woman who have measured productivity y are paid $(1-\gamma)\alpha_m + \gamma y$ and $(1-\gamma)\alpha_f + \gamma y$ respectively
  - There is equal pay for equal expected productivity.
  - There is not equal pay for equal productivity.
  - There is not equal pay for equal measured productivity.
    - ⋆ Even if y is the same, the wage gap is $(1-\gamma)(\alpha_f - \alpha_m)$
  - Subtle point: each group is paid its average productivity

Taste-Based and Statistical Explanations

- What are taste-based and statistical explanations for the following?
  - An american tourist gets quoted higher prices at foreign flea markets
  - A teenager receives a low number of callbacks for job applications
  - A woman receives a high quote from a car mechanic

Testing for Discrimination

- Many approaches to testing for discrimination (not all distinguish taste-based from statistical)
- Two approaches to documenting discrimination from Frank's lecture
  - Correspondence studies
  - Quasi–experiments
- Another approach to distinguishing taste-based and statistical discrimination:
  - Look for differences in productivity across groups
  - If none, then infer discrimination is taste-based
  - If productivity differences exist, then are they large enough to explain discrimination?
  - What might be a potential problem with this approach?

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Inaccurate Statistical Discrimination: Bohren et al. (2019)

- Recent papers distinguish between accurate and inaccurate statistical discrimination
- If we ignore possibility of inaccurate statistical discrimination, we may incorrectly understand discrimination
  - Suppose we study wage discrimination
  - We look at the productivity for the majority and minority group and find no differences
  - Suppose we only consider taste-based and (classical) statistical discrimination
  - Cannot be (classical) statistical discrimination because there are no underlying differences in productivity (so group is not correlated with productivity)
  - However, employers may falsely believe there are productivity differences
- Bohren et al. (2019) run an experiment and show that inaccurate statistical discrimination can be falsely interpreted as taste-based discrimination

Inaccurate Statistical Discrimination: The Experiment

- Overview of the experiment
  - 589 workers from India and the USA do a 50 question math test
  - 577 employers shown 20 worker profiles and asked how much they would pay each
  - Sample profile:
    - Country: USA
    - Gender: Female
    - Age: 63
    - Favorite High School Subject: English
    - Favorite Sport: Gymnastics
    - Favorite Color: Sea Green
    - Favorite Movie: Overboard
    - Prefers Tea/Coffee: Tea
  - If an employer hires a worker, they are paid proportionally to the number of correct questions
  - Last, ask employers questions about beliefs
    - "On average, how many math questions out of 50 do you think X answered correctly?"
    - X is, for example, people from India

Inaccurate Statistical Discrimination: Results

- First, employers discriminate: Indians and men receive higher wage offers
- In this experiment, workers from India and the USA perform equally well on the math test (no productivity differences)
- This rules out (classical) statistical dicsrimination
- So are employers prejudiced against workers from the USA?
- Using belief elicitation survey, they find employers mistakenly believed that workers from India would perform far better than workers from the USA
- Accounting for these productivity beliefs, there is taste-based discrimination against workers from India
- How could we reduce inaccurate statistical discrimination?
- Bohren et al. provide information on average math score and it reduces discrimination

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Reducing Discrimination

- How might we reduce discrimination?
- Some possibilities:
  - Laws, e.g., Civil Rights Act of 1964
  - Policies, e.g., blind interviewing
  - Algorithms
  - Intergroup contact, e.g., Rao 2019
  - Defaults that reduce discretion
  - Others?

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