Counteractive Affirmative Action

COMBATING STATISTICAL DISCRIMINATION IN THE LABOR MARKET
### Table 1 – 2016 US Unemployment Rates by Race and Educational Attainment


<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Less than HS Diploma</th>
<th>High School Diploma</th>
<th>Some College</th>
<th>Bachelors Degree or More</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>3.6%</td>
<td>6.5%</td>
<td>4.5%</td>
<td>3.6%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Black</td>
<td>6.8%</td>
<td>14.1%</td>
<td>8.6%</td>
<td>6.1%</td>
<td>3.7%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>4.8%</td>
<td>5.9%</td>
<td>5.1%</td>
<td>4.3%</td>
<td>3.1%</td>
</tr>
</tbody>
</table>

- Elvira and Town (2002)
- Hunter and Schmidt (1998)
Altonji and Blank (1999)

- Blinder-Oaxaca regression on wages
- Controlled for education, occupation type, age, experience, region, etc.
- Found a 21 log point wage difference, 13 of which were due to race
Statistical Discrimination
Hypothetical risk neutral employer
Will make $1500 for every qualified candidate he hires
Will lose $1000 for every unqualified candidate
Belief that candidate is qualified ($Pr(q) = x$)
Will hire any candidate he believes has a 40% chance of being qualified

$1500 (x) + (-$1000) (1 - x) = 0$
$Pr(q) = x = 0.4$
Believes 50% of white candidates are qualified to do the job
Believes 25% of black candidates are qualified

\[ \Pr(q \mid \text{white}) = .5 \]

\[ \Pr(q \mid \text{black}) = .25 \]
Analysis – Test

- Employer gives all candidates a qualification test
- Grades of A, B, or C
- Grade distributions for qualified and unqualified candidates

<table>
<thead>
<tr>
<th>Qualified</th>
<th>Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>Probability</td>
</tr>
<tr>
<td>A</td>
<td>50%</td>
</tr>
<tr>
<td>B</td>
<td>50%</td>
</tr>
<tr>
<td>C</td>
<td>0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unqualified</th>
<th>Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>Probability</td>
</tr>
<tr>
<td>A</td>
<td>25%</td>
</tr>
<tr>
<td>B</td>
<td>37.5%</td>
</tr>
<tr>
<td>C</td>
<td>37.5%</td>
</tr>
</tbody>
</table>

- \( \Pr(q | \text{white}) = .5 \)
- \( \Pr(q | \text{black}) = .25 \)
Analysis – Bayes Theorem

- \[ \Pr(q \mid \text{grade, race}) = \frac{(\Pr(\text{grade}|q))}{((\Pr(\text{grade}|q) \times \Pr(q|\text{race})) + (\Pr(\text{grade}|\text{unq}) \times (1 - \Pr(q|\text{race})))} \]
Analysis – Hiring Decisions

Whites
- $\Pr(q|A,\text{white}) = 0.666666 = 66.667\%$
- $\Pr(q|B,\text{white}) = 0.571428 = 57.143\%$
- $\Pr(q|C,\text{white}) = 0 = 0\%$

Employer will hire whites who got A's or B's

Blacks
- $\Pr(q|A,\text{black}) = 0.4 = 40\%$
- $\Pr(q|B,\text{black}) = 0.307692 = 30.769\%$
- $\Pr(q|C,\text{black}) = 0 = 0\%$

Employer will hire blacks who got A's but not B's
Analysis – Optimal Tax

- We could change the employers profit conditions through tax policy.

To offset statistical discrimination (get blacks with B’s hired), we would need to tax this employer $333.33 for every black with a B he did not hire.

\[
\begin{align*}
\text{Z} &= \frac{1500 (0.30769) + (-1000 + Z) (1 - 0.30769)}{1} \\
&= 0 \\
\text{Z} &= 333.33
\end{align*}
\]
Counteractive Affirmative Action

REPLICATING OPTIMAL TAXATION IN THE REAL WORLD
Counteractive Affirmative Action

- Based off of affirmative action programs
- Fully adjustable, and incentive based
- Goals of identifying and quantifying discriminant hiring practices, and offsetting this behavior through corporate income taxation
- Seven step process
Set the initial corporate income tax
This rate is exogenous to the model
CAA – Step 2

- Determine the Maximum surplus tax
- This is the maximum amount any firm will have to pay for discriminant hiring practices
- In addition to the initial corporate income tax
CAA – Step 3

- Determine the racial composition of each firm
- This data would be collected by the IRA
- % demographics of workforce
CAA – Step 4

- Determine if a firm is discriminatory in its hiring practices
- To do this, look for demographic imbalances
- Demographic imbalance: a significant difference between a firm’s racial composition and its expected racial composition
- Firms Actual Workforce Composition = Expected workforce composition
Population Proportion model

A firm's demographics should roughly match the demographics of its surrounding community.

If any racial category falls outside of a 10% margin of error, this is labeled a demographic imbalance.

Based off of census tract data.
CAA – Step 4

- Demographics by Occupation model
- Here the expected demographic balances by race are national averages by type of industry
- If a firm falls outside of the 10% margin of error when compared to national averages of similar firms, then there is a demographic imbalance
CAA – Step 5

- Quantify the firms demographic imbalances
- For every identified demographic imbalance, take the observed difference between the actual and expected racial proportions
- Sum these quantities for the firms total demographic imbalance score
Calculate the firms Effective Surplus Tax
This is the amount of the maximum surplus tax that a firm will have to pay
(Firm’s total demographic imbalance score/100) * Maximum surplus tax rate
Initial corporate income tax + effective surplus tax = Firm’s total tax burden (before deductions)
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