Subtle Discrimination

Elena S. Pikulina[1] and Daniel Ferreira[2]

[1]Sauder School of Business, University of British Columbia

[2]London School of Economics, CEPR and ECGI

NBER Summer Institute Personnel Economics
July 26-27, 2023

What is subtle discrimination?

Social and organizational psychologists describe *subtle discrimination* as actions that are:

- ▶ Ambiguous in intent to harm

- ▶ Ex-post rationalizable (i.e., subject to "plausible deniability")

- ▶ Difficult to identify

- ▶ Often (but not always) unintentional

Such actions leave no hard evidence to identify them as discriminatory.

What we do

1. We propose a classification of discriminatory acts into two categories: overt and subtle.

2. In a tournament model of promotions, we show that subtle discrimination and overt discrimination have different empirical predictions.

3. Our empirical predictions relate firm characteristics to

   ▶ performance of different groups of workers, e.g. investment in human capital and career advancement;

   ▶ diversity of top management teams;

   ▶ and firms' choices of anti-discrimination policies.

A definition of subtle discrimination

- We define *subtle discrimination* as biased acts that cannot be objectively ascertained as discriminatory.

- In promotions, when two candidates are equally qualified, promote the one you like the most.

  - In contrast, *overt discrimination* occurs when an objectively less-qualified favored candidate is promoted ahead of a more-qualified unfavored candidate.

- To put it simply, **subtle discrimination is an inability or unwillingness to break "ties" fairly**.

Interpreting "ties"

- Ties arise in cases of similar objective qualifications or multi-dimensional qualifications:
  - Experience of 3 years vs. 3 years and 2 months; GPA of 3.70 vs. 3.65; sales record of \$120K vs. \$125k, etc.
  - Expertise in theoretical asset pricing vs. empirical entrepreneurship.

- In such cases, the decision-maker may use a subjective signal, Δx, (e.g. potential) to separate the candidates.

- The signal has low informativeness and is biased:
  - Hoffman, Kahn, and Li (2018): Evidence of bias when discretion is used in hiring.

- Our model is a limiting case when both the signal-to-noise ratio and observable differences go to zero.

Related Literature

- In our model, discrimination is *bias driven*:
  - Preferences or tastes: Becker (1957);
  - Beliefs or stereotypes: Reuben, Sapienza & Zingales (2014); Bordalo et al. (2016); Bohren et al. (2019).

- Bias is *small*, operates only when rationalization is plausible:
  - Bias amplification: Davies, Van Wesep & Waters (2021); Siniscalchi & Veronesi (2021)

- Agents impose externalities on each other (peer effects), i.e., no *separability*:
  - Mailath, Samuelson & Shaked (2000); Moro & Norman (2004)

- Gender promotion gap:
  - High stakes environments: Azmat, Cunat & Henry (2020)
  - Low stakes environments: Benson, Li & Shue (2021)

Setup: Promotion decision

► A principal needs to fill a top position (*job 2*) and chooses between two agents, both at entry level positions (*job 1*): b (*blue*) and r (*red*).

► Both agents are initially "unskilled" ($s_i = 0$) but can invest to become skilled ($s_i = 1$).

► Skill is observed by the principal but not contractible.

► Promoting an unskilled agent increases the principal's payoff by $l \geq 0$, while promoting a skilled agent increases the payoff by $l + \theta$ (the *productivity gain*).

Setup: Bias in promotion

- Principal always promotes the most skilled agent.

- In case of a "tie", principal promotes Blue with probability $\frac{1}{2} + \beta$.

- Principal is *subtly biased* in favor of blue agents if $\beta > 0$.

    - Overt discrimination takes place if an unskilled blue agent, $s_b = 0$, is promoted ahead of a skilled red agent, $s_r = 1$, with probability δ;
    - As long as $\beta \geq \frac{\delta}{2}$, there is *excess subtle bias*.

- Principal enjoys no private benefit from discrimination.

Setup: Agent's investment in human capital

- Agents are *ex ante* identical, except for labels.

- They make costly investments e_i (unobservable), $i \in \{b, r\}$, to acquire skill.

- Probability of success is e_i.

- Cost of effort is $\frac{k}{2} e_i^2$.

Agent's problem (under exogenous contracts)

▶ Agent at the top (bottom) job receives w_2 (w_1), where $w_2 - w_1$ is *promotion premium*.

▶ We refer to $\sigma \equiv \frac{w_2 - w_1}{k}$ as "stake" of a career path. For presentation, $k = 1$.
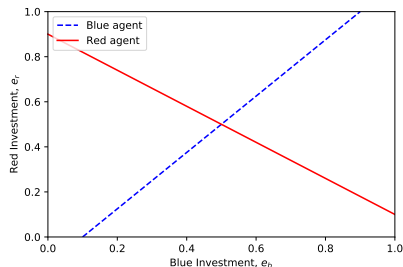
▶ Blue agent's problem:

$$\max_{e_b \in [0,1]} \sigma \left[e_b(1 - e_r) + \left(\frac{1}{2} + \beta \right) (e_b e_r + (1 - e_b)(1 - e_r)) \right] - \frac{e_b^2}{2}$$

▶ Red agent's problem is symmetric, except for $\left(\frac{1}{2} - \beta \right)$ term.
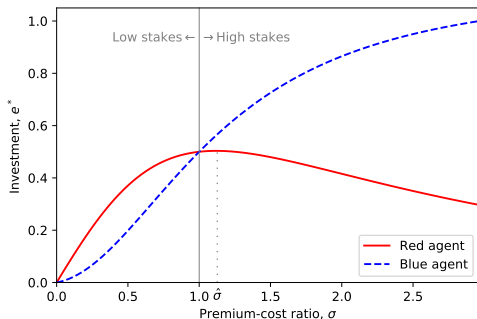
Agents' reaction functions

▶ If no discrimination, $\beta = 0$, the agents' investment reaction functions are flat: $e_b = e_r = \frac{\sigma}{2}$.

▶ If $\beta > 0$, the reaction functions are

$$e_b = \sigma \left(\frac{1}{2} - \beta + 2\beta e_r \right),$$

$$e_r = \sigma \left(\frac{1}{2} + \beta - 2\beta e_b \right).$$

Agents' reaction functions for $\sigma = 1.0$ and $\beta = 0.4$

Optimal investment in skills

Agents' investments as a function of stakes σ for $\beta = 0.4$
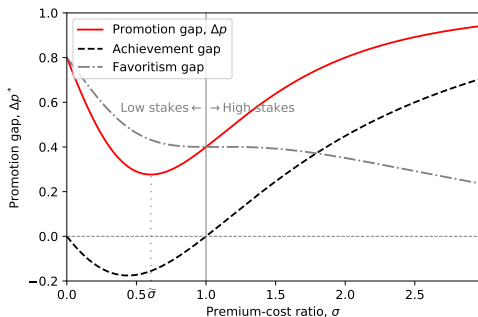
Discouragement effect:
When stakes are high, Blue invests more than Red.

Overcompensation effect:
When stakes are low, Red invests more than Blue.

- ▶ driven by incentives to separate

- ▶ stronger when discrimination is subtle rather than overt

Promotion gap

Promotion gap for $\beta = 0.4$

1. U-shaped promotion gap and the "leaking pipe" phenomenon

2. In low-stakes careers, the promotion gap is positive despite a negative achievement gap.

3. In high-stakes careers, the achievement gap contributes more to the promotion gap.

- ▶ Differences in "observable" achievements (experience, performance, etc.) explain most of the gap.

- ▶ Little residual or "unexplained" discrimination

Suggestive evidence

High stakes

▶ Azmat, Cunat, and Henry (2021) find that gender promotion gaps in law firms can be explained by men working more hours (i.e., exerting more effort) in entry-level positions.

Low stakes

▶ Benson, Li, and Shue (2021) find a substantial gender promotion gap among retail workers, despite the fact that women on management-track careers have better performance than men.

Firm's problem: Optimal stakes and biases

A risk-neutral principal maximizes expected profit:

$$\max_{\beta, \sigma} \theta \left(e_b + e_r - e_b e_r \right) - \sigma,$$

subject to $e_b = e_b^*(\sigma, \beta)$ and $e_r = e_r^*(\sigma, \beta)$, where θ is the *productivity gain* upon promotion of a skilled agent.

"Optimal" bias interpretation: firms may not directly choose β, but instead:

▶ They may allocate more or fewer resources to tackle discrimination and promote diversity.

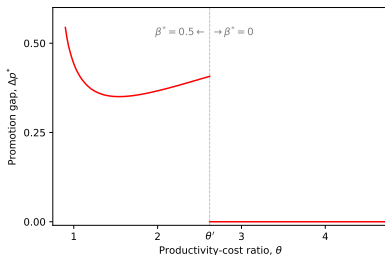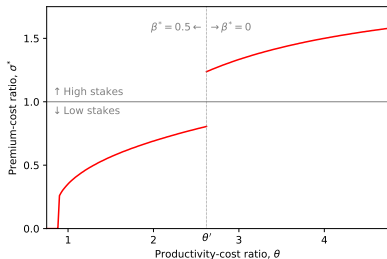▶ Market forces may drive firms with "suboptimal" biases out of the market.

Main question: Does subtle discrimination benefit or harm firms?

Optimal subtle discrimination: Stakes and promotion gap

Proposition: There exists θ' such that

$$\beta(\theta) = \left\{ \begin{array}{ll} 0.5 & \text{if } \theta < \theta', \\ 0 & \text{if } \theta > \theta'. \end{array} \right.$$

Stakes and promotion gap if a firm can choose β:

The polarization of firms

Low-θ (less profitable) firms:

- offer careers with lower stakes;
- are conservative;
- have less diversity at the top.

High-θ (profitable) firms:

- offer careers with higher stakes;
- are "progressive" and "activist";
- have more diversity at the top.

Evidence:

- Employees' perception of DEI is stronger in growing, high-valuation, and financially strong firms (Edmans, Flammer, and Glossner, 2023).
- In the cross-section, large and high-performing firms have more women on their boards (Adams and Ferreira, 2009).

Testing for subtle discrimination

- ▶ The "outcome test" for discrimination compares ex post performances of marginally-treated agents.

- ▶ In our model, marginally-promoted blue and red agents are equally productive.

- ▶ A well-designed outcome test cannot reject the null hypothesis of statistical discrimination (or no discrimination).

- ▶ **Subtle discrimination should feature alongside statistical discrimination as the null hypothesis in outcome tests in competitive situations.**

Testing: Preference shocks

Ronchi and Smith (2021) find that small preference shocks affect managers' discriminatory behaviour, but have no effect on profits.

The birth of a daughter causes managers "*to replace male workers by hiring women with comparable education, hours worked, and earnings.*"

"*In line with managers' ability to substitute men with comparable women, we do not detect any significant effect on firm performance.*"

Main Takeaways

- We define subtle discrimination as biased acts that cannot be objectively ascertained as discriminatory.

- Subtle and overt discrimination have different predictions:
  - The overcompensation effect may dominate the discouragement effect when discrimination is subtle.

- Low-productivity firms offer low-stakes career prospects and:
  - have larger promotion gaps;
  - their unfavored workers perform better than favored ones;
  - are less progressive and activist,

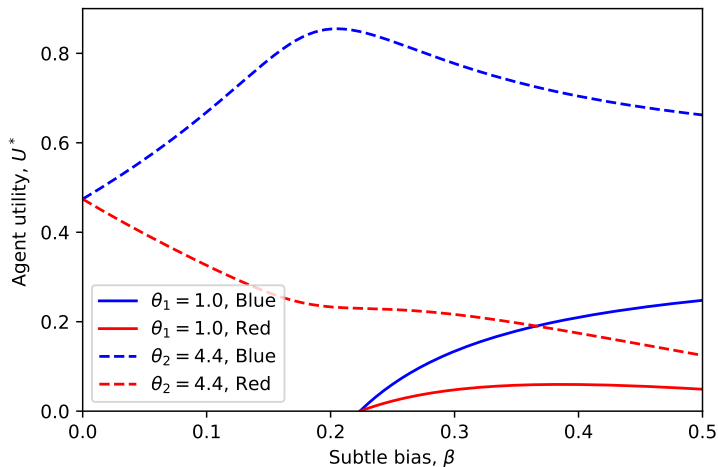- Progressive firms are large, profitable, diverse at the top, and likely to have steep career profiles.
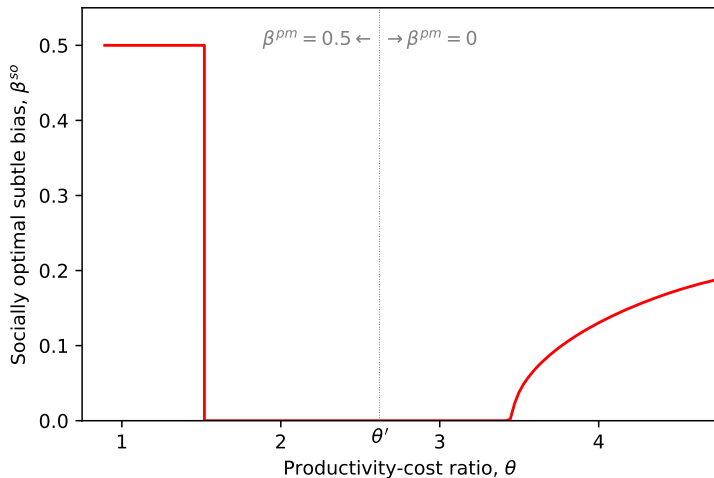
Appendix

Additional results

- Agents' welfare `graph`

    - In high-θ firms, stronger subtle bias may harm blue agents because biased principals offer lower stakes.

    - In low-θ firms, stronger bias may be beneficial for red agents because the promotion premium is higher.

- Social surplus `graph`

    - In low-θ firms, high subtle bias is socially optimal.

    - In high-θ firms, intermediate level of subtle bias may be socially optimal because it reduces the deadweight costs of effort duplication.

Agents' welfare

Blue's utility may decrease with bias, Red's utility may increase with bias

Socially optimal subtle bias