I prefer not to say

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Inspiration

Governments/organisations often want to give preferential treatment to disadvantaged groups. However, they rely on self-reported data for identification.

- Even if we eliminate the the possibility of misreporting for some easily verifiable characteristics
  - e.g. race, poverty
- Imperfect information arises from refusal to report one's true identity
  - "I prefer not to say"

Model Setting (1/2)

- Players:
  - Government (G)
  - Disadvantaged group ($i \in D$)
  - Advantaged group ($i \in A$)
- Strategies:
  - G: level of support given to applicant i: $v_i \in [0, 1]$
  - D: report that they belong to the disadvantaged group or choose not to say
    - $s_{i,D} = \{D, N\}$
  - A: report that they belong to the advantaged group or choose not to say
    - $s_{i,A} = \{A, N\}$

Model Setting (2/2)

- Payoffs:
  - G: $U_G = -(v_i - I(i \in D))^2$
  - D: $U_{i,D}(s = D) = \mu_D + \epsilon_{i,D}$
  - A: $U_{i,A}(s = A) = \mu_A + \epsilon_{i,A}$
  - $U_{i,D}(s = N) = U_{i,A}(s = N) = U(s = N)$
    - unrealistic but good for plotting and does not affect conclusion
  - $\mu_D > \mu_A$ due to preferential treatment
  - ϵs are normally distributed for plotting (or can really be of any distribution)
- Common knowledge:
  - The utility functions
  - The distribution of ϵs
- Special assumption
  - Equal sizes of D and A (for simplicity)

Best strategies

For government (G):

$$v_i = E(i \in D | s_i)$$

For D and A:

- Choose to reveal their true identity when

$$U_{i,D}(s = D) > U(s = N) \quad U_{i,A}(s = A) > U(s = N)$$

- "I prefer not to say" otherwise

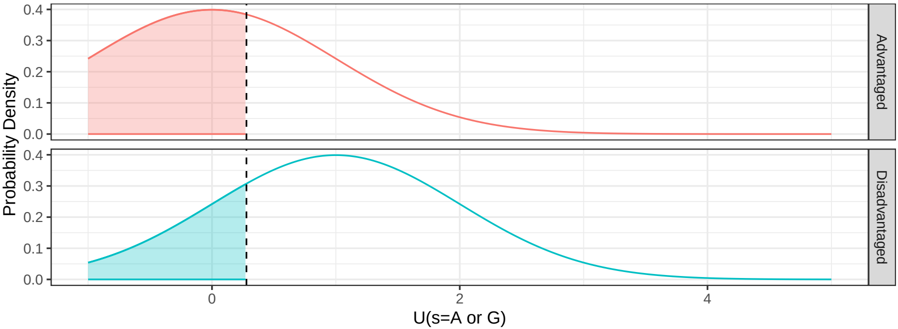
Solve for $U(s = N)$ (baseline)

Parameters:

- $\mu_D = 1,\ \mu_A = 0,\ Var(\epsilon_D) = Var(\epsilon_A) = 1$
- $U(s = N) = \frac{\text{Blue Shaded Area}}{\text{Total Shaded Area}} \approx 0.278$

Outcome:

- 61% of Advantaged Group refuse to self-identify
- 24% of the Disadvantaged Group refuse to self-identify



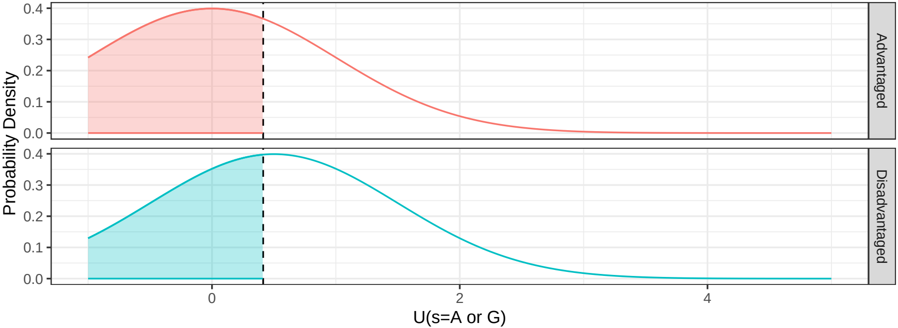
What if there is more social stigma (lower μ_D)?

Parameters:

- $\mu_D = 0.5,\ \mu_A = 0, Var(\epsilon_D) = Var(\epsilon_A) = 1$
- $U(s = N) = \frac{\text{Blue Shaded Area}}{\text{Total Shaded Area}} \approx 0.413$

Outcome:

- 66%(↑) of Advantaged Group refuse to self-identify
- 47%(↑) of the Disadvantaged Group refuse to self-identify



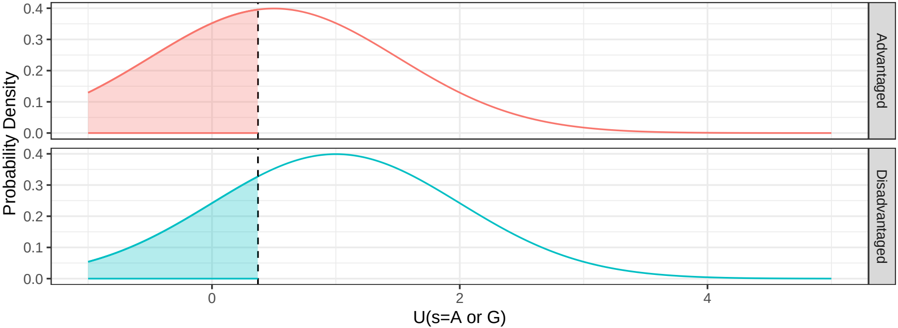
What if the advantaged group is less cheeky (higher μ_A)?

Parameters:

- $\mu_D = 1, \ \mu_A = 0.5, Var(\epsilon_D) = Var(\epsilon_A) = 1$
- $U(s = N) = \frac{\text{Blue Shaded Area}}{\text{Total Shaded Area}} \approx 0.371$

Outcome:

- 45%(↓) of Advantaged Group refuse to self-identify
- 26%(↑) of the Disadvantaged Group refuse to self-identify



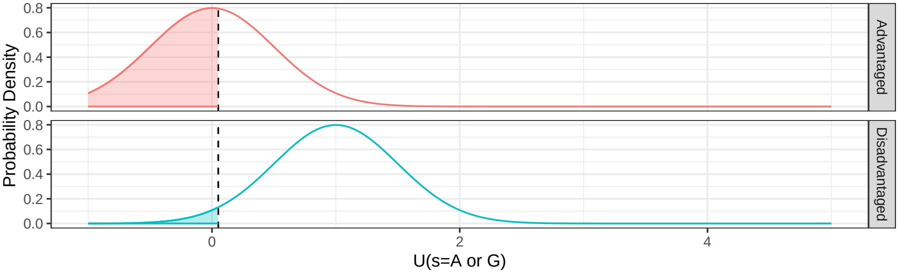
What if people only care about the preferential treatment *per se* and not about reporting?

Smaller variances:

- $\mu_D = 1,\ \mu_A = 0,\ Var(\epsilon_D) = Var(\epsilon_A) = 0.5$
- $U(s = N) = \frac{\text{Blue Shaded Area}}{\text{Total Shaded Area}} \approx 0.0506$

Outcome:

- 54%(↓) of Advantaged Group refuse to self-identify
- 2.9%(↓↓) of the Disadvantaged Group refuse to self-identify



Takeaways

- Social stigma can be taken advantage of by the advantaged group.
- The advantaged group's sympathy leads to lower self-identification of the disadvantaged group.
- When people only care about the preferential treatment *per se*, both group self-identify less.

Possible Extensions

- Different sizes of the two groups
  - when the disadvantaged group is larger relative to the advantaged group, more of the advantaged group choose not to self-identify (intuitively).
- Different utility derived from the preferential treatment for different groups
  - Realistically, the disadvantaged group tend to derive more utility from the preferential treatment
    - Diminishing marginal utility
  - Changes the numeric results but not the conclusion.
- Different distributions
  - Changes the numeric results but not the conclusion.
- Misreporting (when the identity is not verifiable)
  - More complex