

Affirmative Action Through Job Reservation: Does it Work?

Santanu Gupta
Apratim Guha

XLRI, Xavier School of Business
Jamshedpur, India

santanu@xlri.ac.in

May 2023

Are job reservations desirable?

- Do increased access to higher income jobs with reservation translate into increased incomes for the disadvantaged classes?
- Do reservations help in increasing expected incomes of the disadvantaged category?

The Model

- Two categories (c) of people general (g), disadvantaged (d),
 $c = \{g, d\}$
- π_c proportion of people each category
- two periods

Period 1: Options: (a) study at a cost T_c , $T_d > T_g$ (b) join a job in the informal sector at an income y_l

Period 2: (a) If not studied in period 1, earn y_l (b) If studied in period 1, try for a formal sector job, earn y_h if successful and y_l otherwise.

The Model (continued)

- Probability of getting a formal sector job is p_c
- An individual would apply for a formal sector job if:

$$E(Y_c) = -T_c + py_h + (1-p)y_l \geq 2y_l \quad (1)$$

$$p_c \geq \frac{y_l + T_c}{y_h - y_l} = k_c \quad (2)$$

- Given that k_c is monotonic in T_c , $k_d > k_g$ since $T_d > T_g$.
- Let J be the number formal sector jobs as a proportion of total population
- A_c be the applicants in category c as a proportion of total population

$$p_g = p_d = p = \frac{J}{\sum_c A_c} \quad (3)$$

Proposition

Applications for formal sector jobs depends on the probability of getting a job, which in turn depends on the number of formal sector jobs J available. When some people from a category apply for formal sector jobs, the expected income for that category is $2y_l$, when everyone from a category applies, the expected income for that category is greater than $2y_l$.

- 1 $J < k_g \pi_g$, only some from category g apply
- 2 $k_g \pi_g \leq J \leq k_d \pi_g$, all from category g apply
- 3 $k_d \pi_g < J \leq k_d$, all from category g and some from category d apply
- 4 $J > k_d$, all citizens apply

Introduction of Reservations

- We now investigate the impact of a public policy reserving a proportion θ , ($0 < \theta < 1$), of the available jobs J in the formal sector, only for the individuals in the disadvantaged category.
- The probability of getting a job in the reserved category is $p_r = \frac{\theta J}{A_{dr}}$
- The probability of getting a job in the open market category is $p_o = \frac{(1-\theta)J}{A_{dr} + A_{gr} - \theta J}$.
- With reservations the expected income of the general category and disadvantaged category become different.

$$E(Y_g) = p_o y_h + (1 - p_o) y_l$$

$$E(Y_d) = -T + p_r y_h + (1 - p_r)[p_o y_h + (1 - p_o) y_l]$$

Critical Reservation Values

- When $J \leq k_g \pi_g$, all from d and some from g apply if $\theta \geq \underline{\theta} = \frac{\pi_d k_r}{J}$. This can happen only if π_g is very low. Reservations are Pareto Improving.
- When $k_d > J k_g \pi_g$, All from g and some from d apply for $\theta \leq \theta^c = \frac{k_r A_{dr}}{J} = \frac{k_r [J - k_o \pi_g]}{[k_o + k_r - k_o k_r] J}$. If θ increases above $\underline{\theta}$, all of category d , and only some of category g will apply.
- When $J > k_d$, all citizens apply for formal sector jobs for $\theta \leq \theta^c$. Reservations are Pareto Deteriorating for $\theta > \theta^c$.

- The Union Public Service Commission conducts recruitment for jobs for the central government.
- Empirical evidence reveal that in India low representation is mainly due to differences in skill levels amongst the general and the disadvantaged category rather than explicit discrimination in hiring.
- Unfilled reserved category jobs is due to the fact of the low chances of clearing the cutoff arising out of high training costs for the disadvantaged category.

FIGURE 1: APPLICATIONS IN UPSC PRELIM EXAMINATION

