Affirmative Action Through Job Reservation: Does it Work?

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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 \((d)\),
  \[ c = \{g, d\} \]

- \(\pi_c\) 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.
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

$$p_g = p_d = p = \frac{J}{\sum_c A_c} \quad (3)$$
Applications and Incomes without Reservation

Proposition

Applications for formal sector jobs depend 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 $\theta$, $(0 < \theta < 1)$, 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 \( \theta \geq \theta = \frac{\pi_d k_r}{J} \). This can happen only if \( \pi_g \) 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 \( \theta \) increases above \( \theta \), 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

- GEN
- SC
- ST
- OBC
- TOTAL

APPLIICATIONS

YEAR