When You Can't Afford to Wait for a Job: The Role of Time Discounting for Own-Account Workers in Developing Countries

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> *People may choose OAW because they have urgent consumption needs and can't afford to wait for a good job sometime in the future.*

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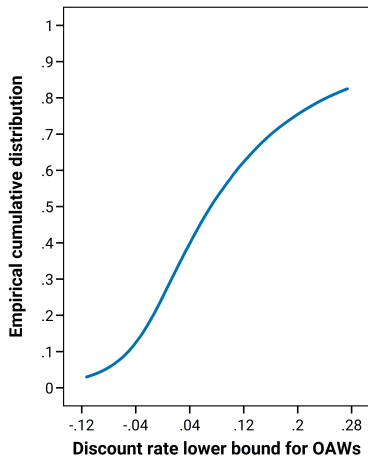▶ For how long would I need to search? How long would such job last?

Step 3 **Infer the subjective time discount from the observed choice:**

▶ By revealed preference, infer for all Brazilian own-account workers the lowest discount rate (ρ) that makes such occupation prefereable.
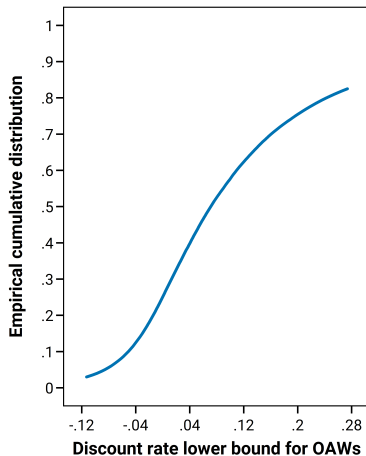
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(Brazil, urban areas, 2016-2019)
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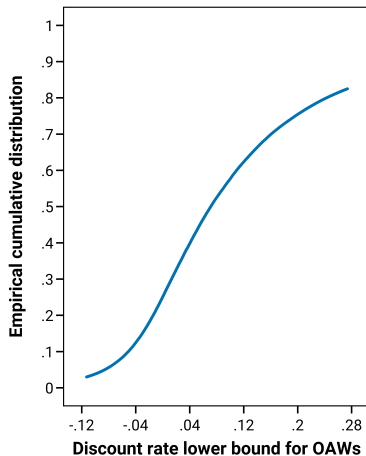*(Brazil, urban areas, 2016-2019)*
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Average market rate

Discount rate lower bound for OAWs

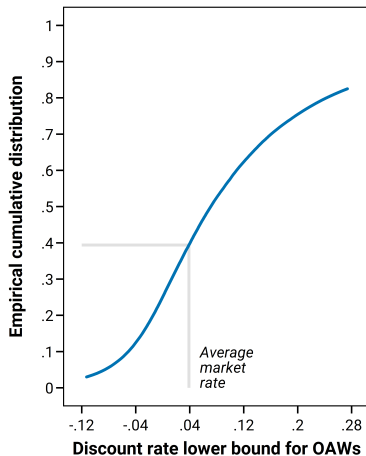## When is the decision constrained?

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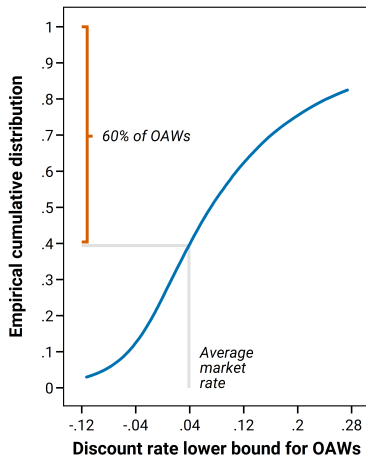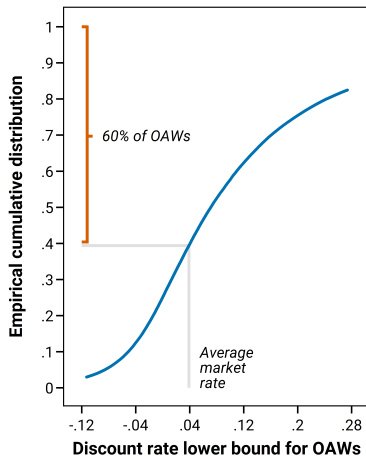**When is the decision constrained?**

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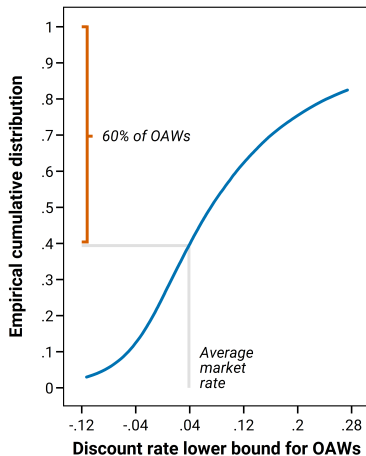
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Main result:

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Implication:

► Many rational workers can be stuck in low-pay OAW given frictional job market, contrained finance, urgent consumption.

Appendix:

Valuation equations in the extended job search model

Wage employment	$\rho \cdot W(w) = w + \delta \cdot \Big(U - W(w) \Big)$

Unemployment	$\rho \cdot U = b + \lambda \cdot \displaystyle\int_{w_r}^{\infty} \Big(W(w) - U \Big) \, dF(w)$

Reservation wage	$w_r = b + \dfrac{\lambda}{\delta + \rho} \cdot \displaystyle\int_{w_r}^{\infty} \Big(w - w_r \Big) \, dF(w)$

Own-account work	$\rho \cdot OAW = y$

Appendix:

The occupational decision from the perspective of the discount rate

$$\rho > \frac{\lambda}{y - b} \cdot \int_{w_r}^{\infty} (w - w_r) \, dF(w) - \delta$$

What is this?

▶ The (right-hand side) minimum discount rate that justifies the choice for OAW, given the individual productivity and the labor market conditions.

How is this useful?

▶ Formalization of the idea that a sufficiently high urgency for consumption (i.e. the "necessity") can rationalize the choice for OAW for any value of y.

Appendix:

The building blocks of the structural model

$$\rho > \frac{\lambda}{y - b} \cdot \int_{w_r}^{\infty} (w - w_r) \, dF(w) - \delta$$

$$\downarrow$$

$$\hat{\rho}_i > \frac{\mathbb{E}\left(\lambda \mid X_i\right)}{y_i - \mathbb{E}\left(b \mid X_i\right)} \cdot \left[\mathbb{E}\left(w \mid w > w_r, X_i\right) - \mathbb{E}\left(w_r \mid X_i\right) \cdot \mathbb{P}(w \geq w_r)\right] - \mathbb{E}\left(\delta \mid X_i\right)$$

1. y_i is directly observable for own-account workers.

2. $\mathbb{E}\left(\lambda \mid X_i\right)$ is fit with an unemp. duration model and with $\mathbb{P}(w \geq w_r)$.

3. $\mathbb{E}\left(b \mid X_i\right)$ is assumed to be zero, the most frequent value.

4. $\mathbb{E}\left(w \mid w > w_r, X_i\right)$ is fit with a Heckman selection model.

5. $\mathbb{E}\left(w_r \mid X_i\right)$ is fit with a quantile regression at the 10th centile.

6. $\mathbb{P}(w \geq w_r)$ is calculated for a normal distribution of wages.

7. $\mathbb{E}\left(\delta \mid X_i\right)$ is fit with a job duration model.

Appendix:

The PNAD survey and the population of interest

► **Data size:** 8.9 million observations (2.7 million individuals).

► **Population of interest:** Adults living in urban areas.

► *Exclude individuals below 14 years old (~19% of population).*

► *Exclude individuals from rural areas (~14% of adults).*

► **Sample size:** 5.3 million observations (1.6 million individuals).

► **Time coverage:** 16 quarters (2016 Q1 to 2019 Q4).

► **Monetary correction:** Inflation-adjusted values (~4.2 p.p. yearly).

► **Complex survey:** interview weights account for probability of observation.