Expected Discrimination and Job Search

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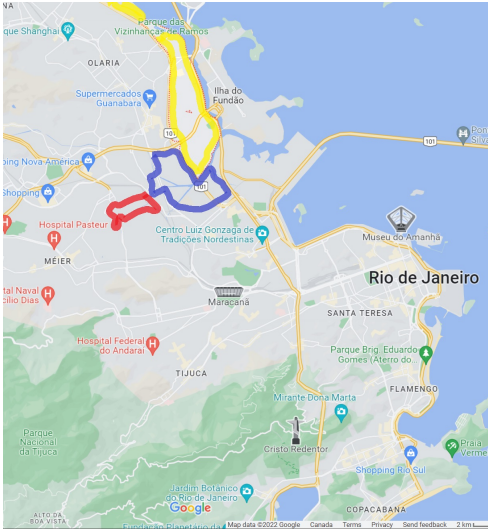
This paper: field experiments on how expected discrimination affects *job search*

Context: Favelas in Rio de Janeiro

- Favelas are urban slums
  - Typically ruled by organized crime
- Formal jobs are desirable but rare in favelas
- Favela residents expect address-based discrimination
- Jobseekers in Maré, Manguinhos, and Jacarezinho interpret discrimination as a bundle
  - Loss of workdays due to police raids (74%), racism and cultural differences (68%, 67%), dislike of favela residents (65%)



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  - Two experiments using a "blinding" policy, one testing a different intervention

Favela Jobseekers Expect Significant Anti-Favela Discrimination

- We asked jobseekers to predict the results of an audit study, in which we sent fictitious resumes with randomized addresses to 700 sales jobs
- Median jobseeker expects a 50% discrimination rate
- We find very similar callback rates (19.6% and 19.3%, p=0.38)
  - Does not imply that there is no discrimination
- Most people are too pessimistic in relation to an objective benchmark

Application Form Experiment (N=1,303)

- Does making address less visible encourage applicants?
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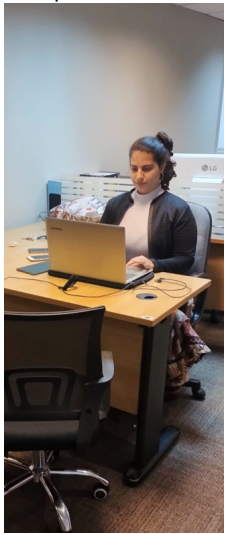
Results

- Average null effects; ≈40% apply and ≈20% show up for interview
- But dropping address increases show up by 10pp for **white** jobseekers
  - White jobseekers can more easily pass as non-favela residents
  - Non-white jobseekers may expect discrimination either way

Interview Experiment (N=422)

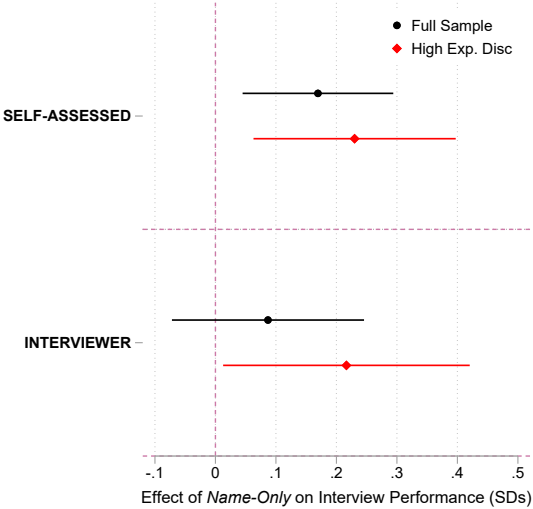
- All applicants are invited to interview at downtown office
- Receptionist confirms name, DOB, and address. Moments after, she says: "[...] the interviewer will only know:
  - your name" (*Name-Only*)
  - your name *and address*" (*Name-and-Address*)
- During interviews, interviewer only knows name
- Outcomes are 0-10 ratings of overall performance, nervousness, and professionalism
  - Evaluated by the interviewer and self-assessed (3 measures each)
  - Build an ICW index (Anderson, 2008) for each of the two

Receptionist at work:



Expected Discrimination Hurts Interview Performance

- Candidates believed they did 0.17SD better when told that the interviewer would only know their name
- Larger effects on those who expected more discrimination, significant also on the interviewer's assessment
- Believing you can suffer discrimination leads to worse performance
  - Effects seem to be mediated by a stress response
  - Self-fulfilling prophecy



Summary Until Here

- Jobseekers overestimate discrimination as measured in our audit study
- Reducing expected address visibility (blinding) only encourages white jobseekers
- Expected discrimination acts as a self-fulfilling prophecy at the interview stage

To help us understand the results on application decisions and what other policies could prevent self-fulfilling prophecies, we designed an information experiment

Information Experiment (N = 690)

- Randomly reveal that we found little discrimination in the audit study
  - Outcomes: application decisions

Results

- Null average effect
- Encourages non-white jobseekers to apply (not statistically significant)
- But now white jobseekers are relatively **discouraged**
  - Low anti-favela discrimination should also mean low racial discrimination and low benefits from passing as a non-favela residents. So white jobseekers might expect more competition and feel discouraged

Beware of correlated sources of discrimination – intersectionality is hard

Conclusion/Policy Implications

- Expected discrimination can lead to a self-fulfilling prophecy in job interviews
  - Correcting overly pessimistic beliefs with information could help, but it discourages white jobseekers from applying
- We should be cautious about pre-interview "blinding" policies
  - Most of the sample (non-white jobseekers) was unaffected
  - These policies can have unintended consequences on firms (Behaghel et al., 2015; Agan and Starr, 2018; Doleac and Hansen, 2020)
- Blinding at interviews (e.g., Goldin and Rouse (2000)) might be more promising
  - It is important to consider all correlated stigmas
  - Technology such as AI-intermediated evaluations might help (Avery et al., 2023)

What Predicts Expected Discrimination?

Outcome is predicted % drop in callback rates if from favela

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Some college (0/1)	5.076*	12.821***								
	(2.996)	(2.187)								
Completed regular high-school (0/1)	-3.573		6.569**							
	(5.024)		(2.998)							
Working now (0/1)	5.373**			5.520***						
	(2.417)			(1.935)						
Ever worked (0/1)	-5.060**				-1.405					
	(2.560)				(2.034)					
Male (0/1)	-4.113*					-3.329				
	(2.147)					(2.275)				
White jobseeker (0/1)	-3.393						-2.615			
	(2.622)						(2.645)			
Age	-0.099							0.051		
	(0.207)							(0.205)		
High R	4.167*								7.383***	
	(2.194)								(2.150)	
Skill Index	5.718**									5.166***
	(2.846)									(1.456)
Observations	2166	2167	2167	2167	2167	2167	2167	2167	2166	2167

* p<0.1, ** p<0.05, *** p<0.01. Outcome is the implied discrimination rate, measured by the expected decrease in callbacks if a resume is from the favela (% decrease). Robust standard errors shown between parenthesis.

What Correlates with Race?

Outcome is a dummy for white

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Some college (0/1)	0.078*	0.103***								
	(0.043)	(0.037)								
Completed regular high-school (0/1)	-0.016		0.023							
	(0.037)		(0.022)							
Working now (0/1)	-0.049**			-0.050***						
	(0.021)			(0.019)						
Ever worked (0/1)	-0.018				-0.047**					
	(0.025)				(0.021)					
Male (0/1)	0.023					0.031				
	(0.020)					(0.020)				
Age	-0.004***						-0.004***			
	(0.002)						(0.001)			
High R	0.027							0.025		
	(0.030)							(0.027)		
Skill Index	0.034*								0.029***	
	(0.019)								(0.011)	
Expects > 50% disc in audit	-0.026									-0.024
	(0.018)									(0.018)
Observations	2166	2167	2167	2167	2167	2167	2167	2166	2167	2167

* p<0.1, ** p<0.05, *** p<0.01. Robust standard errors shown between parenthesis.

What Predicts Application?

Average application rate is ≈40%

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Some college (0/1)	0.248	-2.464									
	(4.475)	(3.976)									
Completed regular high-school (0/1)	-2.744		-1.599								
	(4.334)		(2.678)								
Working now (0/1)	-22.713***			-22.241***							
	(2.436)			(2.153)							
Ever worked (0/1)	11.631***				-2.645						
	(2.793)				(2.463)						
Male (0/1)	-6.646***					-7.442***					
	(2.268)					(2.293)					
White jobseeker (0/1)	-0.307						1.405				
	(2.503)						(2.559)				
Age	-0.894***							-0.958***			
	(0.181)							(0.166)			
High R	-12.068***								-20.675***		
	(3.077)								(2.836)		
Skill Index	4.254**									0.069	
	(2.156)									(1.236)	
Expects > 50% disc in audit	1.283										1.064
	(2.092)										(2.157)
Observations	2166	2167	2167	2167	2167	2167	2167	2167	2166	2167	2167

* p<0.1, ** p<0.05, *** p<0.01. Outcome is the application dummy times 100. Robust standard errors shown between parenthesis.

Descriptives

	Mean	SD	Min	Max	N
Maré resident (0/1)	0.62	0.48	0	1	2,167
Jacarezinho resident (0/1)	0.19	0.39	0	1	2,167
Manguinhos resident (0/1)	0.19	0.39	0	1	2,167
Age	25.91	6.24	18	41	2,167
Male (0/1)	0.30	0.46	0	1	2,167
White jobseeker (0/1)	0.22	0.42	0	1	2,167
Some college (0/1)	0.08	0.27	0	1	2,167
Completed regular high-school (0/1)	0.80	0.40	0	1	2,167
Working now (0/1)	0.32	0.47	0	1	2,167
Holds a formal job (0/1)	0.13	0.34	0	1	2,167
Ever worked (0/1)	0.75	0.43	0	1	2,167
Actively search last week (0/1)	0.49	0.50	0	1	2,167
Microsoft Office Experience (0/1)	0.80	0.40	0	1	1,984
Surveyor-assessed comm skills (Likert scale, 0-5)	2.79	1.10	0	4	2,167
Math test score	6.96	2.50	0	17	2,167
Heard of people refused job/fired due to address (0/1)	0.32	0.47	0	1	2,167
Believes has been refused job/fired due to address (0/1)	0.28	0.45	0	1	2,167

Heterogeneous Effects Sizes Are Robust to Adding Covariates

- Estimate $y_i = \alpha + \beta \text{Name-Only}_i + \sum_j \gamma^j \text{Name-Only} \times X_i^j + \nu^j X_i^j$ for different sets of covariates, including race and/or high expected discrimination

	(1) Interviewer-assessed performance	(2) Interviewer-assessed performance	(3) Interviewer-assessed performance	(4) Interviewer-assessed performance	(5) Self-assessed performance	(6) Self-assessed performance	(7) Self-assessed performance	(8) Self-assessed performance
Name-Only	-0.11	0.02	-0.18	0.44	0.07	0.12*	0.03	0.64*
	(0.13)	(0.09)	(0.14)	(0.46)	(0.09)	(0.07)	(0.10)	(0.37)
Name-Only × High Exp. Disc.	0.33**		0.32*	0.24	0.16		0.16	0.14
	(0.17)		(0.16)	(0.15)	(0.13)		(0.13)	(0.13)
Name-Only × White jobsee.		0.29	0.29	0.31*		0.19	0.19	0.17
		(0.20)	(0.20)	(0.19)		(0.15)	(0.15)	(0.15)
Observations	422	422	422	422	422	422	422	422
Other Interactions?	No	No	No	Yes	No	No	No	Yes

* p<0.1, ** p<0.05, *** p<0.01. Other Interactions include skill, having completed regular high school, employment status. having ever worked, age, and a dummy for having reservation wage over R$1,500.

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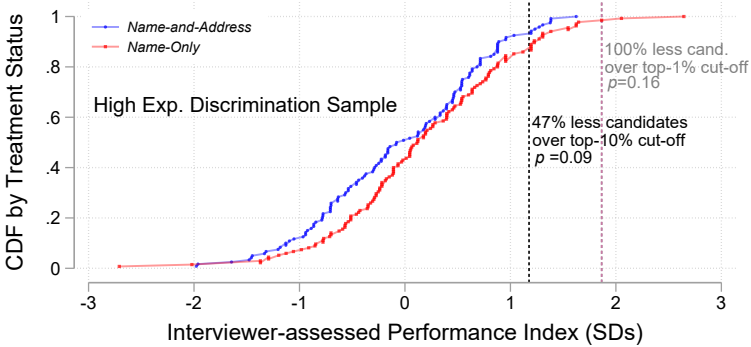
Discussion

How Relevant Are the Interview Effects?

- Exercise to estimate how many people lost matches due to exp. discrimination
- Take as reference the distribution of interviewer-assessed index in *Name-Only*
- What is the share ejected from the top-X% due to discrimination?



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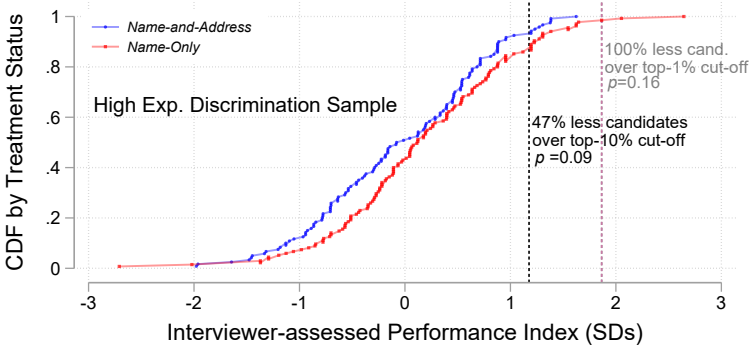

- But even if effects were restricted to self-perceptions
  - Interviewers are not typically blind
  - There can be learning and discouragement, mental health issues...

Discussion

How Relevant Are the Interview Effects? Whole Sample

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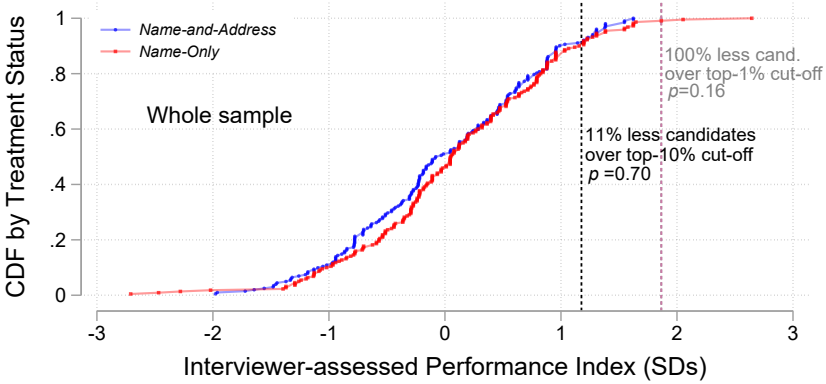

Discussion

How Relevant Are the Interview Effects For White Jobseekers?

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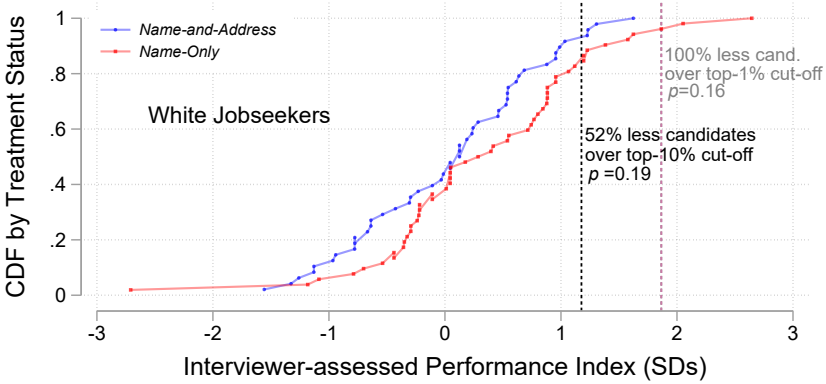
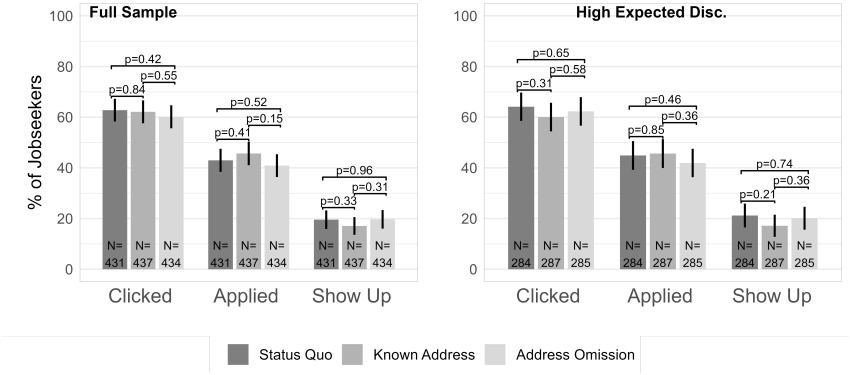


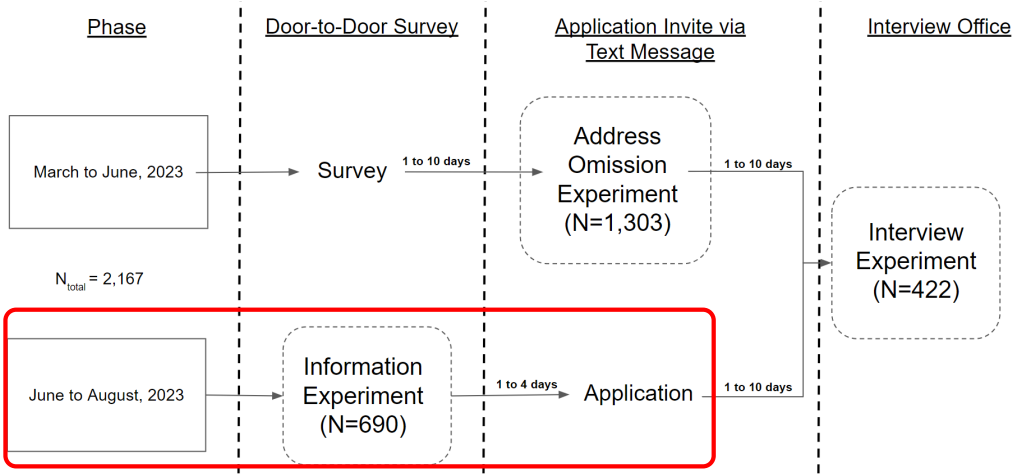
Discussion

Expected Address Visibility Does Not Change Application Rates – With Double-lasso Selected Controls)



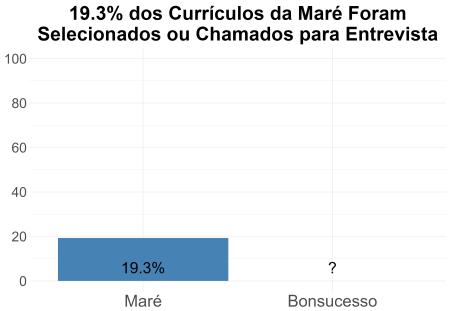
Back

Experimental Design: Information Experiment

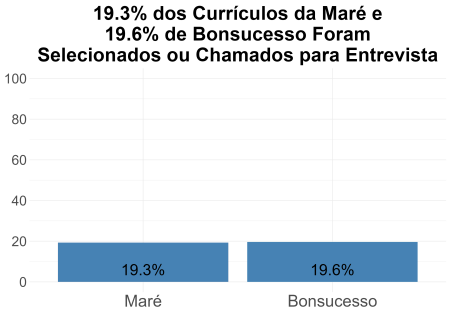


Information Experiment: Treatments

- Treatment delivered by surveyor after guessing the Audit Study callback rate
- Three treatment arms (N = 690)
  - No Info
  - Favela Info – just the favela (Maré's) callback (cb) rate
  - Full Info – cb rates for both favela and non-favela



(a) Favela Info



(b) Full Info

Information Leads to Strong Belief Update

- Get posterior by incentivizing the HR firm callback rate prediction
  - Compare own favela vs. closest non-favela rates to gauge discrimination

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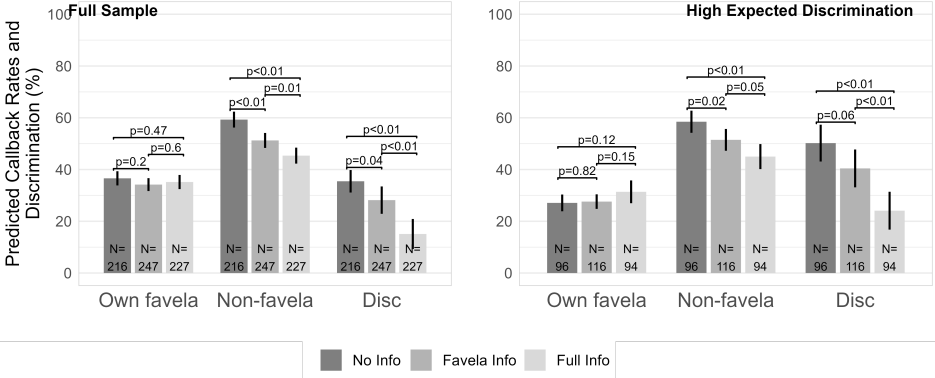
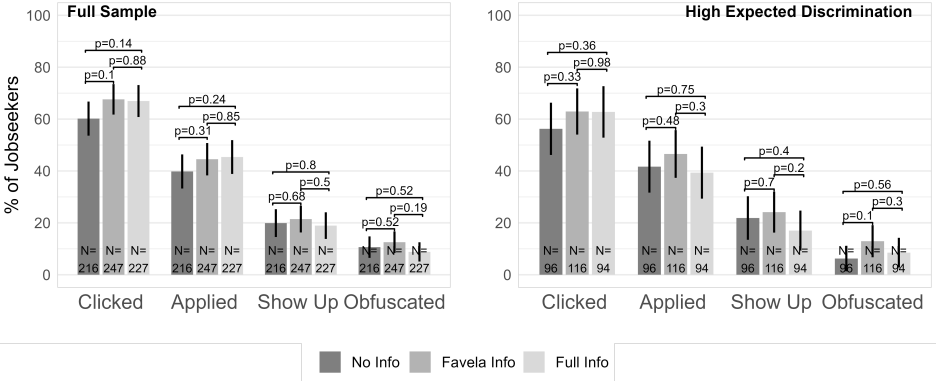


- Treatments shift beliefs Favela under- and overestimators
- Both treatments decrease expected discrimination
- Response to expected callback rate can be non-monotonic Model

Information Experiment: Application Rates



- No effect on interview show-up
- No application responses to expected discrimination
  - No effect of exp. disc. if we instrument that belief with treatments ◂ Table
  - No effect on number of applications after two weeks Table

Summing Up

Information Experiment: IV Estimates

	(1) Applied (%)	(2) Show Up (%)	(3) Obfuscated in application (%)
Posterior Expected Callback for Own Favela (%)	-0.45	-0.14	-0.55*
	(0.51)	(0.41)	(0.33)
Posterior Expected Discrimination Rate (%)	-0.11	0.05	0.11
	(0.21)	(0.18)	(0.14)
Observations	690	690	690
No Info Mean	39.8	19.9	10.6

* p<0.1, ** p<0.05, *** p<0.01.

	(1) Applied (%)	(2) Show Up (%)	(3) Obfuscated in application (%)
Posterior Expected Callback for Own Favela (%)	-0.43	-0.51	-0.55

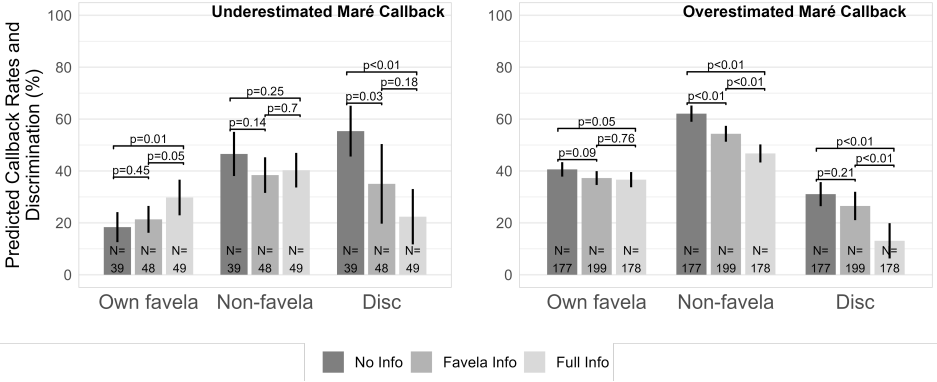
How Should Application Rates Respond to Expected Callback Probability?

- Jobseeker picks number of applications n given
  - an expected callback probability p
  - constant marginal application cost c

Solve: $$\max_{n \geq 0} V(n, p) - nc$$

- FOC: $V_n(n^*, p) - c = 0$, assuming convex problem (needs $V_n > 0$ and $V_{nn} < 0$)
- IFT: $\frac{\partial n^*}{\partial p} = -\frac{V_{np}(n^*,p)}{V_{nn}(n^*,p)}$
- Potentially non-monotonic response, V_{np} can be either positive or negative
- Caring only about one's first callback, $V(n, p) = (1 - (1 - p)^n)V - nc$ is a simple example
  - For low p, not worth applying
  - For high p, you get a callback with high certainty, so you can decrease n in response to a marginal increase in p

Address Omission Beliefs


Underestimated Maré Callback
Overestimated Maré Callback
Predicted Callback Rates and Discrimination (%)
100
80
60
40
20
0
p=0.01
p=0.05
p=0.45
p=0.25
p=0.7
p=0.14
p<0.01
p=0.18
p=0.03
p=0.05
p=0.76
p=0.09
p<0.01
p<0.01
p<0.01
p<0.01
p<0.01
p=0.21
N= 39
N= 48
N= 49
N= 177
N= 199
N= 178
Own favela
Non-favela
Disc
No Info
Favela Info
Full Info

Beliefs

Info Treatment Effects - Endline Survey

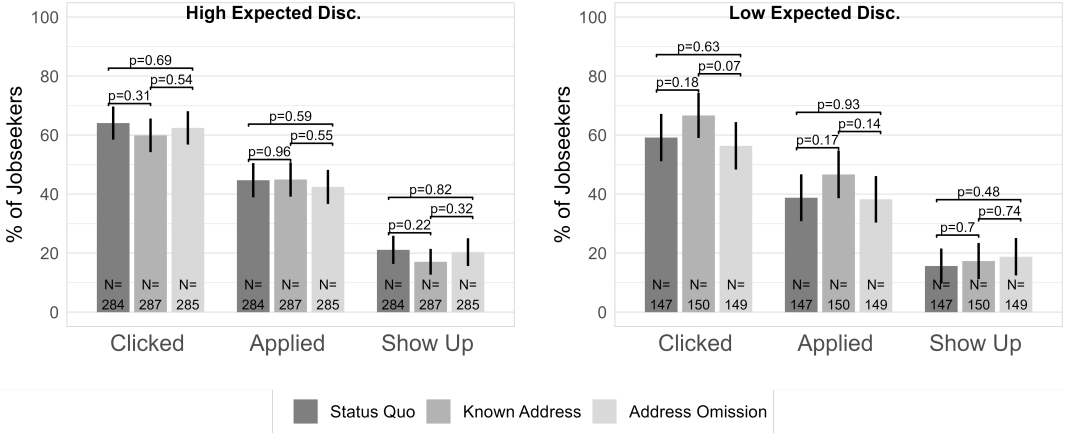
- Endline conducted two weeks after baseline survey, via WhatsApp
- Multiple choice questions, A to D

	(1) Responded to endline (0/1)	(2) Exp. discrimination (categorical, 1-4)	(3) # of sent apps (categorical, 1-4)
Favela Info	0.02	0.06	-0.02
	(0.05)	(0.10)	(0.13)
Full Info	0.02	-0.12	0.02
	(0.05)	(0.10)	(0.14)
Observations	690	389	389
Controls	No	No	No
No Info Mean	0.6	2.3	2.5
Favela=Full *p*	0.96	0.06	0.76

- Some persistence of drop in expected discrimination in *Full Info*
  - p=0.09 comparing *Full Info* with the two other arms
- Still a null effect on applications

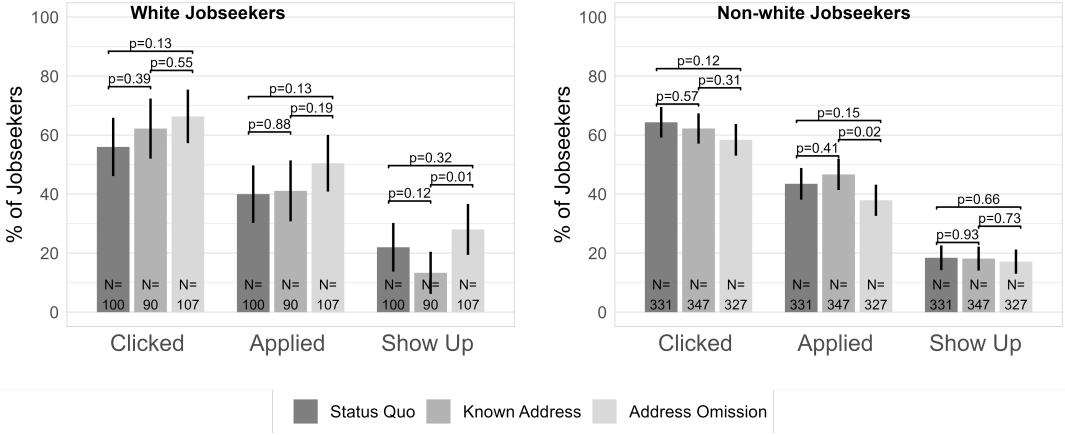
◂ Summing Up

Address Omission Experiment – Expected Discrimination Heterogeneity



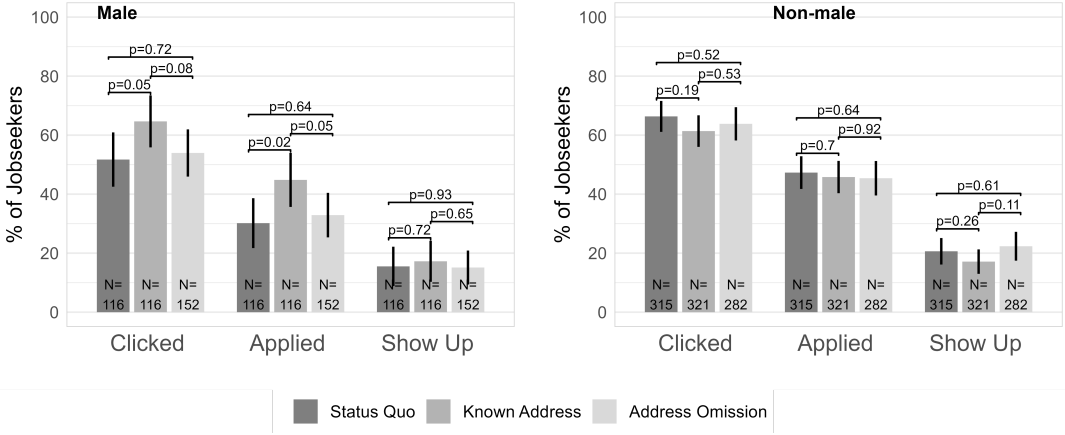
◂ Discussion ◂ Address Omission Experiment Discussion

Address Omission Experiment – Race Heterogeneity



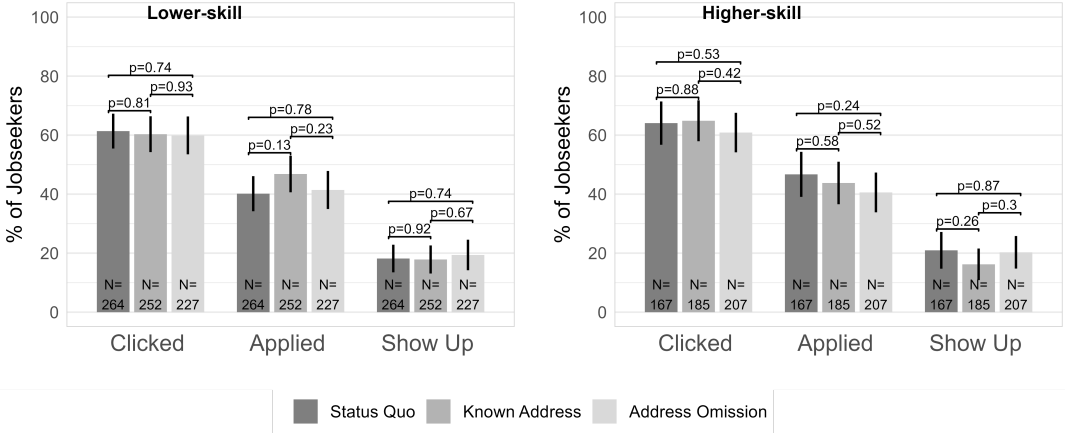
◂ Discussion ◂ Address Omission Experiment Discussion

Address Omission Experiment – Gender Heterogeneity



◂ Discussion ◂ Address Omission Experiment Discussion

Address Omission Experiment – Skill Heterogeneity



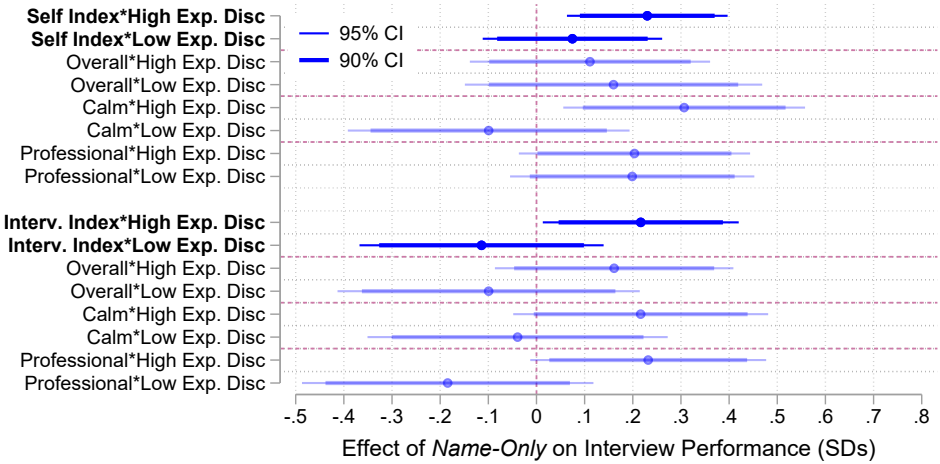
◂ Discussion ◂ Address Omission Experiment Discussion

What Can Reconcile the Interview and Application Results?

- Many differences from job application decision to interview
  - Stakes, stress, time to strategize and rationalize
- Null results on application decision might be because
  - Jobseekers decide to apply based on heuristics
  - Or many might be at "corner solutions", e.g.,
    - Lack of childcare options
    - Expecting race discrimination either way
- Jobseekers might have difficulty controlling their behaviors in interviews
  - High-expected-discrimination and white jobseekers feel significantly more nervous ($\approx$0.3SD) when thinking the interviewer knows their address Figures
  - The same individuals obfuscate 20% (5.7pp) *less* at the office ($p<0.01$)
  - The strongest average effect on an index component was on self-assessed professional behavior (0.2SD)
- Choking under pressure (Harb-Wu and Krumer, 2019; Dohmen, 2008; Baumeister, 1984)

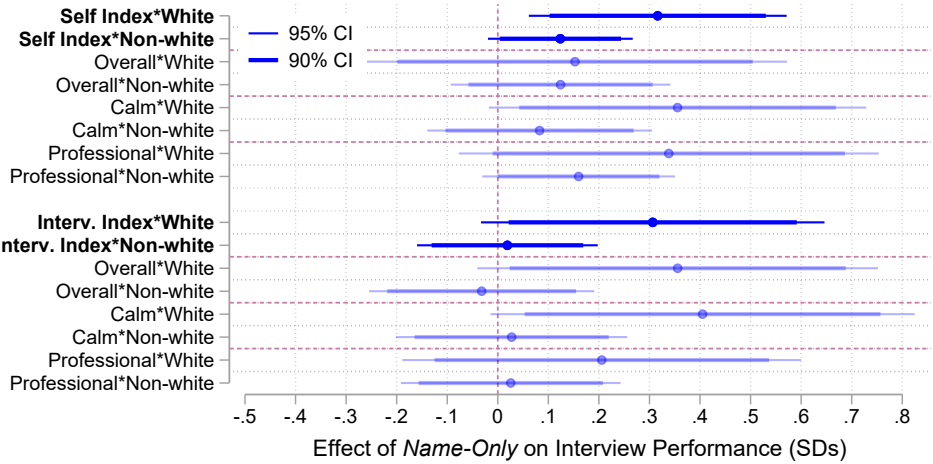
Discussion

Interview Experiment – Expected Discrimination Heterogeneity



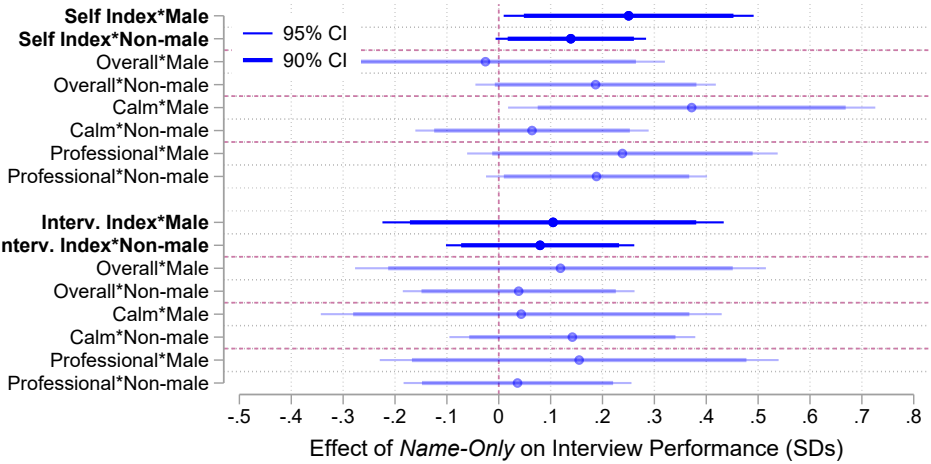
Discussion

Interview Experiment – Race Heterogeneity



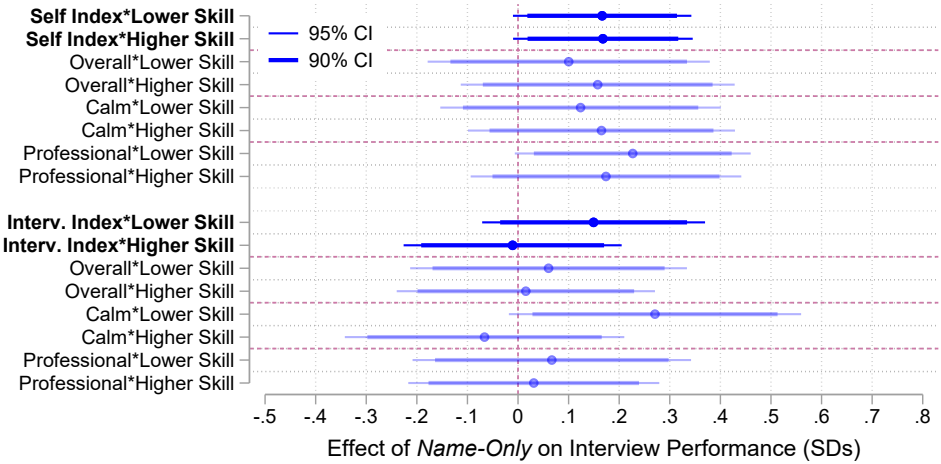
Discussion

Interview Experiment – Gender Heterogeneity



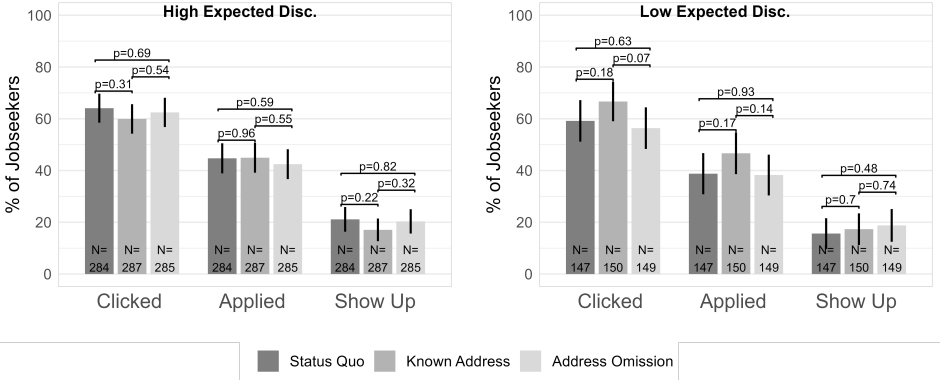
Discussion

Interview Experiment – Skill Heterogeneity



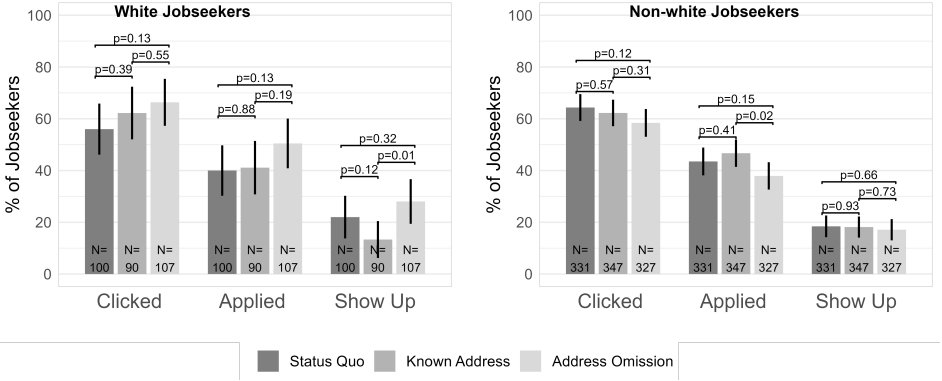
Discussion

Information Experiment – Expected Discrimination Heterogeneity



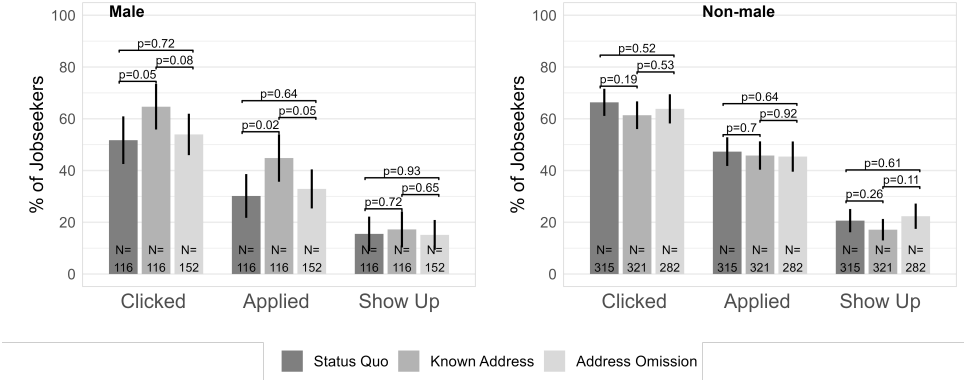
Beliefs

Information Experiment – Race Heterogeneity



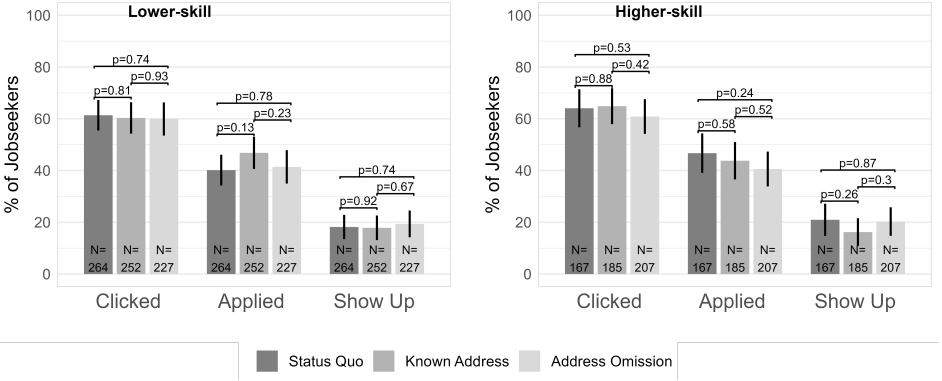
Beliefs

Information Experiment – Gender Heterogeneity



Beliefs

Information Experiment – Skill Heterogeneity



Beliefs

Balance Tests (1/2)

Address Omission Experiment

	(1) Expects >%50 disc in audit	(2) White jobseeker (0/1)	(3) Male (0/1)	(4) Skill index	(5) Maré resident (0/1)	(6) Completed regular high schoool	(7) Working now (0/1)	(8) Ever worked (0/1)	(9) Age
Address Omission	-0.002	0.015	0.081***	0.092	-0.017	0.027	-0.005	0.053*	0.548
	(0.032)	(0.029)	(0.031)	(0.059)	(0.028)	(0.029)	(0.032)	(0.031)	(0.425)
Known Address	-0.002	-0.026	-0.004	-0.025	-0.009	0.024	-0.011	0.039	0.737*
	(0.032)	(0.028)	(0.030)	(0.058)	(0.028)	(0.029)	(0.032)	(0.031)	(0.426)
Observations	1302	1302	1302	1302	1302	1302	1302	1302	1302
Status Quo Mean	0.66	0.23	0.27	-0.07	0.80	0.76	0.33	0.69	25.35
Favela=Full p	1.00	0.15	0.01	0.05	0.76	0.91	0.83	0.63	0.66

* p<0.1, ** p<0.05, *** p<0.01.

Interview Experiment

	(1) Expects >%50 disc in audit	(2) White jobseeker (0/1)	(3) Male (0/1)	(4) Skill index	(5) Maré resident (0/1)	(6) Completed regular high schoool	(7) Working now (0/1)	(8) Ever worked (0/1)	(9) Age
Name-Only	0.020	-0.001	0.006	0.051	-0.095**	0.019	0.060*	0.056	-0.133
	(0.048)	(0.042)	(0.043)	(0.085)	(0.047)	(0.041)	(0.033)	(0.043)	(0.565)
Observations	422	422	422	422	422	422	422	422	422
Control Mean	0.59	0.24	0.26	-0.01	0.66	0.77	0.10	0.71	25.12

* p<0.1, ** p<0.05, *** p<0.01.

◂ Address Omission ◂ Interview Experiment

Balance Tests (2/2)

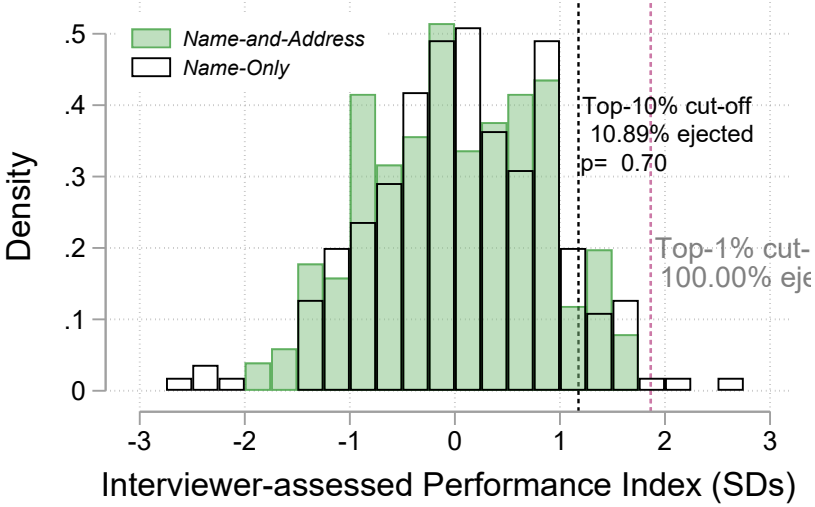
Interview Experiment

	(1) Expects >%50 disc in audit	(2) White jobseeker (0/1)	(3) Male (0/1)	(4) Skill index	(5) Maré resident (0/1)	(6) Completed regular high schoool	(7) Working now (0/1)	(8) Ever worked (0/1)	(9) Age
Favela Info	0.03	0.00	0.02	-0.02	0.04	-0.00	0.02	0.06	0.92
	(0.05)	(0.04)	(0.04)	(0.08)	(0.04)	(0.03)	(0.04)	(0.04)	(0.58)
Full Info	-0.03	0.02	0.03	-0.17**	0.04	-0.07*	-0.03	-0.01	-0.39
	(0.05)	(0.04)	(0.04)	(0.08)	(0.05)	(0.04)	(0.04)	(0.04)	(0.57)
Observations	690	690	690	690	690	690	690	690	690
No Info Mean	0.4	0.2	0.3	0.1	0.3	0.8	0.3	0.8	26.0
Favela=Full *p*	0.23	0.72	0.91	0.07	0.98	0.05	0.29	0.07	0.02

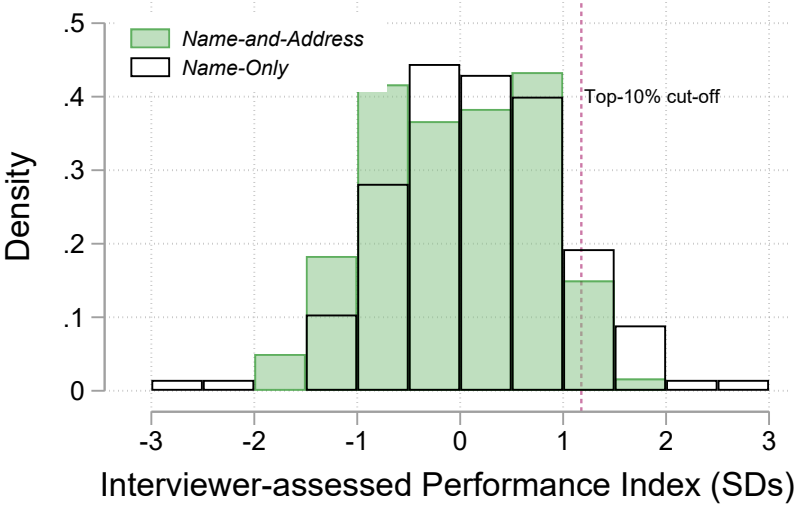
* p<0.1, ** p<0.05, *** p<0.01.

	(1) Address Omission Experiment		(2) Information Experiment		(3) Interview Experiment		(1)-(2) Pairwise t-test		(1)-(3) Pairwise t-test		(2)-(3) Pairwise t-test	
Variable	N	Mean/(SE)	N	Mean/(SE)	N	Mean/(SE)	N	Mean difference	N	Mean difference	N	Mean difference
Maré resident (0/1)	1302	0.790	690	0.354	422	0.614	1992	0.436***	1724	0.176***	1112	-0.260***
		(0.011)		(0.018)		(0.024)						
Jacarezinho resident (0/1)	1302	0.184	690	0.193	422	0.204	1992	-0.009	1724	-0.020	1112	-0.011
		(0.011)		(0.015)		(0.020)						
Manguinhos resident (0/1)	1302	0.027	690	0.454	422	0.182	1992	-0.427***	1724	-0.156***	1112	0.271***
		(0.004)		(0.019)		(0.019)						
Age	1302	25.783	690	26.036	422	24.815	1992	-0.254	1724	0.967***	1112	1.221***
		(0.174)		(0.236)		(0.283)						
Male (0/1)	1302	0.295	690	0.303	422	0.265	1992	-0.008	1724	0.030	1112	0.037
		(0.013)		(0.018)		(0.022)						
White jobseeker (0/1)	1302	0.228	690	0.210	422	0.237	1992	0.018	1724	-0.009	1112	-0.027
		(0.012)		(0.016)		(0.021)						
Some college (0/1)	1302	0.064	690	0.080	422	0.071	1992	-0.016	1724	-0.007	1112	0.009
		(0.007)		(0.010)		(0.013)						
Completed regular high-school (0/1)	1302	0.776	690	0.823	422	0.777	1992	-0.047**	1724	-0.002	1112	0.046*
		(0.012)		(0.015)		(0.020)						
Working now (0/1)	1302	0.326	690	0.284	422	0.135	1992	0.042*	1724	0.191***	1112	0.149***
		(0.013)		(0.017)		(0.017)						
Holds a formal job (0/1)	1302	0.118	690	0.135	422	0.047	1992	-0.017	1724	0.071***	1112	0.087***
		(0.009)		(0.013)		(0.010)						
Ever worked (0/1)	1302	0.722	690	0.786	422	0.737	1992	-0.064***	1724	-0.015	1112	0.049*
		(0.012)		(0.016)		(0.021)						
Actively search last week (0/1)	1302	0.531	690	0.425	422	0.649	1992	0.106***	1724	-0.119***	1112	-0.225***
		(0.014)		(0.019)		(0.023)						
Surveyor-assessed comm skills (Likert scale, 0-5)	1302	2.795	690	2.797	422	3.001	1992	-0.002	1724	-0.206***	1112	-0.204***
		(0.029)		(0.045)		(0.051)						
Math test score	1302	6.960	690	6.945	422	6.919	1992	0.015	1724	0.041	1112	0.026
		(0.072)		(0.091)		(0.115)						
Reservation wage (USD)	1301	253.155	690	246.173	422	231.962	1991	6.983	1723	21.193***	1112	14.211***
		(3.016)		(3.215)		(2.736)						

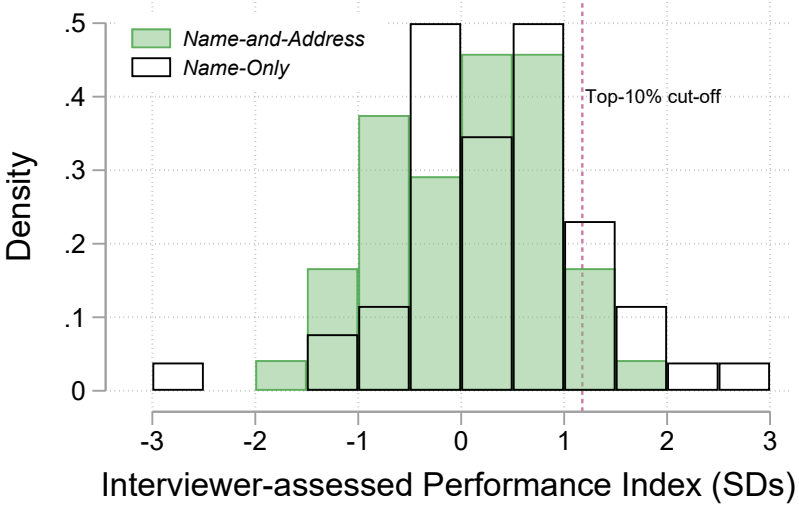
Interviewer-assessed Rating Distribution – Overall



Interviewer-assessed Rating Distribution – High Exp. Disc



Interviewer-assessed Rating Distribution – White Jobseekers



Literature

- Effects of expected discrimination
  - Related: Del Carpio and Fujiwara (2023); Avery et al. (2023); Burn et al. (2023)
  - Lab: Kang et al. (2016); Charness et al. (2020); Hoff and Pandey (2006); Fryer et al. (2005); Aksoy et al. (2023)
  - Other: Kuhn and Shen (2023); Agüero et al. (2023); Pager and Pedulla (2015); Lepage et al. (2022); Dickerson et al. (2022); Lang and Manove (2011)

- Interviews Goldin and Rouse (2000); Word et al. (1974)
  - Stereotype threat & self-fulfilling prophecies: Steele and Aronson (1995); Vecci and Želinskỳ (2019); Coate and Loury (1993); Lundberg and Startz (1983); Glover et al. (2017)
  - Welfare stigma: Schanzenbach (2009); Finkelstein and Notowidigdo (2019); Lasky-Fink and Linos (2022)

- Slums and address-based discrimination Westphal (2014); Zanoni et al. (2023); Bonnet et al. (2016); Mikula and Reggiani (2022)

- Literature on audit studies Riach and Rich (2002); Rich (2014); Neumark (2018)

◂ Contributions

Agan, Amanda and Sonja Starr, "Ban the box, criminal records, and racial discrimination: A field experiment," *The Quarterly Journal of Economics*, 2018, *133* (1), 191–235.

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