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Do labor market conditions affect the extent of gender discrimination?

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Motivation

- The environment in which firms operate may be important to determine the extent of discrimination:
  1. Product market competition: discriminatory firms disappear in the long run when facing competition (Becker 1957).
  2. Labor market conditions: ambiguous effect of economic shocks (i.e. measured by unemployment rates) on discrimination (Biddle & Hamermesh 2013).
- Scant literature on the effect of labor market conditions on discrimination (Biddle & Hamermesh 2013; Baert et al. 2015).

Our goal

- Do discriminatory firms respond to labor market tightness?
- Ambiguous effect: with a negative economic shock the opportunity cost of filling a vacancy falls, but firms destroy relatively more discriminatory jobs.
- Main contributions:
  1. Direct measure of discrimination: explicitly discriminatory job advertisements.
     Explicit discrimination: use of ascriptive characteristics to describe ideal job candidates.
  2. Our data covers all of Mexico as opposed to the limited scope of correspondence studies (Baert et al. forthcoming).
  3. Emerging economy with low levels of female labor force participation and a "macho" culture.

Main findings

1. Gender targeting in job ads is common (10% of ads, half and half).
2. Other types of targeting based on age (39%), skin color (3 ads), physical constitution (378), and beauty (11%).
3. Evidence that gender targeting increases with higher unemployment rates.
4. Evidence that male targeting increases with higher unemployment rates.
5. Evidence that beauty-, physique-, and age-targeting decrease with unemployment rates.
6. Evidence that targeting, in general, decreases with unemployment rates.

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1. Biddle & Hamermesh (2012) relate wage gaps to unemployment rates in the US during 1979-2009.
   - Gender wage gap is counter-cyclical; Hispanics-White wage gap, counter-cyclical; African American-Whites wage gap, pro-cyclical.
   - Drawback: The wage gap response has both pure discrimination effects and composition effects.
2. Baert et al. (2015) do a correspondence study in Belgium comparing callbacks to Turkish and Flemish job seekers in bottleneck and non-bottleneck occupations.
   - No discrimination in bottleneck occupations, whereas there's discrimination in non-bottleneck occupations.
   - Drawback: they analize 376 vacancies in two cities.

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- Job ads have been used in previous literature to analyze discrimination.
- Darity & Mason (1998) give an account of discriminatory job ads pre-Civil Rights Act in the US.
- Lawler & Bae (1998) used job ads to analyze the role of culture on discrimination among MNCs in Thailand.
- Kuhn & Shen (2013) study gender discrimination in China. They find evidence of negative skill targeting.
- Delgado et al. (2016) study gender discrimination using three Chinese and a Mexican job board. They confirm the negative skill targeting and emphasize an "age twist" in gender targeting.
- This data has not been used to link discrimination to local labor conditions (nor product market competition).

Research design: Data

1. Job advertisements from occmundial.com.mx from August 2014 to September 2015.
   - We have collected data from over a million job ads using a web crawler.
   - Description of ideal candidate: gender, age, education, marital status, physical appearance and other requirements.
   - Description of the job position: geographic location, firm, occupational category and subcategory, wage offer, benefits, etc.
   - Vacancies rate.
2. Labor market conditions at the state level using the National Labor Survey, Q3-4 of 2014 and Q1-2 of 2015.
   - Different measures: unemployment rate, partial occupation rate, informality rate, size of labor force, and others.

Research design: Estimating equation

Following Kuhn and Shen (2013), we have two estimating equations:

1. Probability of gender targeting (OLS):

$$(P_M + P_F)_{ist} = \alpha + \beta T_{st} + \gamma \log(wage_{ist}) + \delta_{FE} + \varepsilon,$$

$(P_M + P_F)$ takes values $\{0, 1\}$, it's 1 if there is gender targeting (LPM).

2. Direction of gender targeting (OLS):

$$(P_M - P_F)_{ist} = \alpha + \beta T_{st} + \gamma \log(wage_{ist}) + \delta_{FE} + \varepsilon$$

$(P_M - P_F)$ takes on values $\{-1, 0, 1\}$.
P_M is a dummy of male-targeting; P_G, a dummy of female-targeting of ad i in state s at time t; T, measures labor market tightness at the state-quarter level; $wage$ is the mid-point of the wage offer; and δ_{FE} is a structure of fixed effects.

Descriptive statistics

Table 1. Job advertisements from OCC Mundial

Variable	Mean	S.D.
Gender-targeting:		
Female	0.056	0.229
Male	0.056	0.231
No-targeting	0.888	0.315
Education requirements:		
Junior high school	0.025	0.156
High school	0.130	0.337
Technician	0.053	0.224
University degree	0.268	0.443
No education posted	0.591	0.492
Experience requirements:		
Experience in years	3.237	1.764
None or not posted	0.762	0.426
Wage offered:		
Wage posted	0.543	0.498
Wage at midpoint	$ 12,678.54	$ 15,540.08
Age requirements:		
Has age requirement	0.365	0.481
Age at midpoint	33.407	9.108
Number of ads	972,013	

Variable	Mean	S.D.
Marital status requirements:		
Single	0.004	0.059
Married	0.006	0.076
No marital status req.	0.991	0.096
Other job requirements:		
Beauty	0.104	0.306
Photograph in CV	0.104	0.306
Willingness to travel	0.088	0.283
Work under pressure	0.130	0.336
Kind	0.011	0.105
Obliging	0.114	0.317
English	0.167	0.373
Team work	0.081	0.272
Type of contract:		
Part-time	0.017	0.129
Full-time	0.210	0.408
Undefined contract	0.778	0.416
Permanent position	0.028	0.166
Position by fees	0.002	0.050
Number of ads	972,013	

Descriptive statistics

Table 2. Labor market tightness

Rate of:	**Mean**	**S.D.**
Job-search	0.0935	0.0285
Unemployment	0.0494	0.0103
Partial ocupation	0.1063	0.0199
Informality	0.5477	0.0971
Subocupation	0.0770	0.0374
Critical working conditions	0.0971	0.0441
Observations	128	

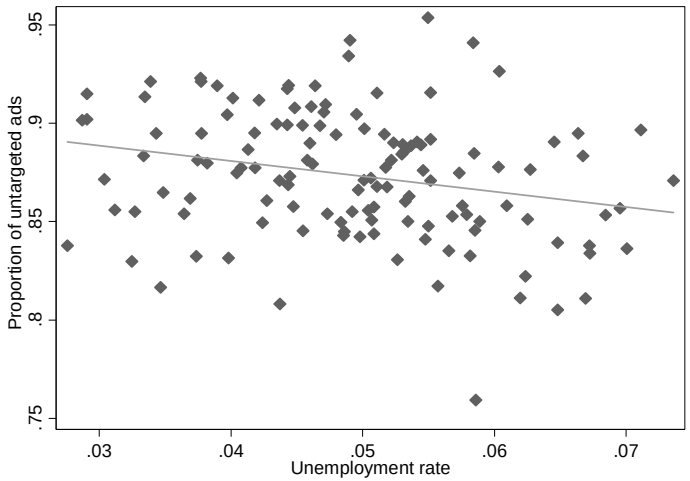
Descriptive statistics

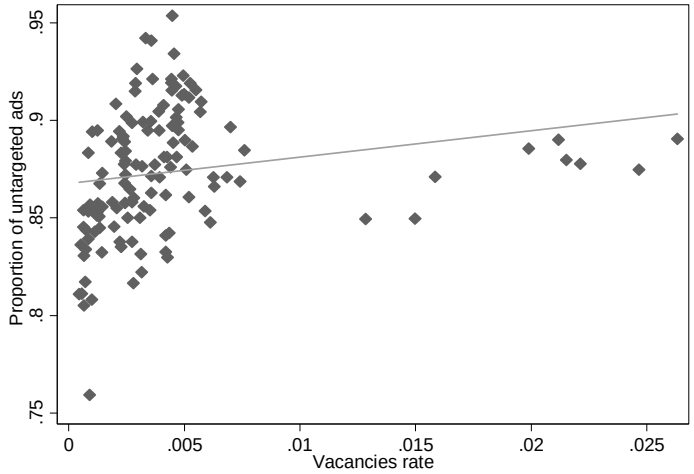
Table 3. Comparison of ads. vs. labor survey

Variable	OCC Mundial	ENOE		
	Job ads	All	Employed	Job searchers
Age	33.3588	39.8823	39.1676	33.4372
Wage	13673.17	2353.56	4076.24	1657.05
Female	0.4970	0.5289	0.4090	0.3765
Married	0.6229	0.5604	0.6101	0.4505
Junior highschool	0.0613	0.3097	0.3029	0.3346
High school	0.3188	0.2469	0.2540	0.2743
College or more	0.6567	0.1583	0.2063	0.2079

Some suggestive evidence

Figure 1. Discrimination and labor market tightness





Results

Probability that an ad is gender targeted

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployment rate	0.820***	0.050	0.752***	0.802***	0.737***	0.010	-0.017	-0.108
	[0.143]	[0.258]	[0.263]	[0.255]	[0.212]	[0.269]	[0.282]	[0.355]
Log(wage)	0.071***	0.071***	0.072***	0.067***	0.053***	0.072***	0.067***	0.053***
	[0.001]	[0.001]	[0.003]	[0.003]	[0.002]	[0.003]	[0.003]	[0.002]
Other controls:								
State FE	Y	Y	Y	Y	Y	Y	Y	Y
Quarter FE		Y				Y	Y	Y
Firm FE			Y			Y		
Firm * Occupation category FE				Y			Y	
Firm * Occupation subcategory FE					Y			Y
Observations	338,681	338,681	338,681	338,681	338,681	338,681	338,681	338,681

Results

Direction of gender preferences and labor market tightness

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployment rate	0.466***	0.458***	0.442***	0.519***	0.283**	0.404**	0.586***	0.195
	[0.096]	[0.176]	[0.096]	[0.103]	[0.131]	[0.181]	[0.190]	[0.234]
Log(wage)	0.028***	0.028***	0.029***	0.023***	0.011***	0.029***	0.023***	0.011***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.002]	[0.001]	[0.001]	[0.002]
Other controls:								
State FE	Y	Y	Y	Y	Y	Y	Y	Y
Quarter FE		Y				Y	Y	Y
Firm FE			Y			Y		
Firm * Occupational categories FE				Y			Y	
Firm * Occupation subcategories FE					Y			Y
Observations	338,681	338,681	338,681	338,681	338,681	338,681	338,681	338,681

Results

Other targeting and labor market tightness using unemployment rate

Dependent variable:	**Coefficients on the unemployment rate:**							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Any targeting=1	-0.840***	-0.562**	-0.693	-0.816	-0.521**	-0.600**	-0.478*	-0.142
	[0.129]	[0.232]	[0.567]	[0.542]	[0.241]	[0.237]	[0.259]	[0.320]
Age targeting=1	-0.345***	-0.126	-0.209	-0.353	-0.155	-0.177	-0.052	0.119
	[0.130]	[0.233]	[0.507]	[0.480]	[0.235]	[0.246]	[0.270]	[0.324]
Physique targeting=1	-0.554***	-0.749***	-0.514**	-0.582**	-0.161	-0.773***	-0.738***	-0.449
	[0.110]	[0.197]	[0.237]	[0.235]	[0.176]	[0.214]	[0.217]	[0.282]
Beauty targeting=1	-0.430***	-0.752***	-0.410***	-0.480***	-0.207	-0.773***	-0.724***	-0.647***
	[0.090]	[0.159]	[0.154]	[0.153]	[0.145]	[0.169]	[0.178]	[0.234]
Other controls:								
Log(wage)?	Y	Y	Y	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y	Y	Y	Y
Quarter-Year FE		Y				Y	Y	Y
Firm FE			Y			Y		
Firm * Occupation category FE				Y			Y	
Firm * Occupation subcategory FE					Y			Y
Observations	338,681	338,681	338,681	338,681	338,681	338,681	338,681	338,681

Discussion and conclusions

- We found suggestive evidence of explicit discrimination in job ads at OCC Mundial in Mexico.
- Firms seem to respond to negative economic shocks (higher unemployment rates):
  - if costs of keeping vacancies unfilled are low, then firms discriminate more (observed effect on gender targeting).
  - if job destruction of discriminatory positions is higher than for non-discriminatory positions, then firms discriminate less (observed effect on other types of targeting).

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- We can say that women are worse off than males during downturns when it comes to advertised job opportunities.
- We found that gender targeting increases with higher unemployment rates, in particular male-targeting.
- This may or may not translate into worse odds of getting hired relative to males.
- Advantage: very direct measure of discrimination using a big amount of unused, available data.
- Drawbacks: very early stage in the hiring process. We cannot infer anything about callbacks, actual hiring, wage gaps or promotions.
- Ads regulation $\longrightarrow$ Lack of enforcement, low costs of getting personal info.