

What is the right profile for getting a job?
A stated choice experiment of the recruitment process

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Introduction: Background

- Labor market discrimination is a major issue in most countries
- Difficult to design policy to prevent discrimination
- We need a better understanding of the degree and nature of the existing discrimination

Introduction: Approaches to measure discrimination

- Studies based on observational data
 - Unobserved heterogeneity difficult to handle
- Studies based on data from correspondence studies
 - No unobserved heterogeneity, but some other problems
- Studies based on data from stated choice experiments

Introduction: Purpose

- Investigate if employers discriminate based on job applicants'
 - Gender
 - Age
 - Ethnicity
 - Religious beliefs
 - Number of children
 - Weight
 - History of sickness absence
- Investigate if the degree of discrimination depends on the firms' cost of uncertainty in hiring (the extent of co-payment in sickness benefits)
- Investigate if the degree of discrimination depends on the type of recruiter and firm

Introduction: Stated choice approach

- Recruiters are asked to describe the most recent employee who voluntarily left the firm
- Recruiters are asked to choose between two hypothetical applicants to
 - Invite to a job interview
 - Hire
- The hypothetical applicants differ with respect to some characteristics, but are identical to the previous employee in all other dimensions

Introduction: Stated choice approach - Advantages

- Control over the information available to the recruiting employers – no unobserved heterogeneity
- Possible to study many different kinds (gender, ethnic, age, etc.) of discrimination simultaneously
- Possible to study worker characteristics which may be relevant in any stage of the hiring process (invite to job interview and hiring)
- Possible to measure discrimination in terms of the wage reduction needed to make employers indifferent – new way of quantifying discrimination
- Possible to distinguish between different types of discrimination (co-payment and recruiter & firm characteristics)
- No ethical concerns

Introduction: Stated choice approach - Disadvantage

- Based on claimed rather than actual behavior
 - Strategic /hypothetical bias
 - Experiment designed to handle this concern
 - Any remaining bias should be against discrimination

Introduction: Preview of the results

- Discrimination against applicants who are:
 - Old
 - Non-European
 - Jewish or Muslim
 - Have several children
 - Obese
 - Have a history of sickness absence
- The degree of the discrimination is substantial
 - Corresponds to wage reductions of up to 50 percent
- More firm co-payment may reduce hiring, but does not affect the degree of discrimination
- Limited differences in the degree of discrimination between different types of recruiters and firms

Introduction: Outline

- Experiment
- Data and estimation
- Results
- Conclusions

Experiment: Preliminary steps

- Initial interviews with a number of employers
- Pilot survey and focus groups
- Small pre-test

Recruiters:

- Remembered the last employee who quit
- Indicated that they used signals in the recruitment process, but used different signals in the invite to job interview and hiring phase
- Understood the experiment given that the number of characteristics which was varied was not too large

Experiment: Design

- Worker characteristics which may be relevant in any of the stages of the hiring process – invite to job interview or hiring
- Worker characteristics which are typically included in a CV or observed/discussed in a job interview
- 4 worker characteristics are varied in each question/game
- 156 hypothetical applicants – 13 versions of the questionnaire
- Each recruiter answered 4 + 8 questions/games
- Questions about the last employee, the recruiter and the firm

Experiment: Attributes

- Always:
 - Wage (-10%, same, +10%)
 - Type of firm co-payment in the sickness benefit system (3 weeks sick wage, 2 weeks sick wage, 2 weeks sick wage followed by 15 percent co-payment)
- Invite to interview:
 - Gender (male, female)
 - Age (-29, 30-55, 56-)
 - Education (lowest, middle, highest quartile)
 - Experience (-4, 5-7, 8- years)
- Hiring:
 - Gender (male, female)
 - Ethnicity (Nordic countries, rest of Europe, Africa/Middle East/South America)
 - Religious beliefs (Christian, Jewish, Muslim)
 - Number of children (0, 1, >1)
 - Weight (silhouettes for normal weight, overweight, obese)
 - History of sickness absence (1-2, 3-5, 6- times per year; -7, 8-14, 15- days each time)

Experiment: Example

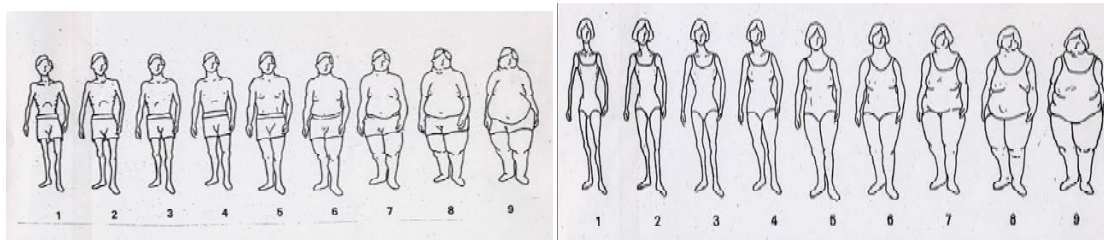
- 22 Who do you invite to an interview if you must choose one of the following two applicants?**
The only differences between the two applicants and the employee you described in Part 1 are summarized in the table.

APPLICANT A:		APPLICANT B
Woman	Gender	Man
29 years or younger	Age	56 years or older
10% lower wage than the employee	Wage (non-negotiable)	10% higher wage than the employee
Day 2-21	Sickness insurance	Day 2-14
1 <input type="checkbox"/> Invite A	2 <input type="checkbox"/> A and B similar	3 <input type="checkbox"/> Invite B

Experiment: Example

30 Who do you hire if you must hire one of the following two applicants?

The only differences between the two applicants and the employee you described in Part 1 are summarized in the table. The weight scale is given below:



APPLICANT A:

Woman
7-9
Same wage as the employee
Day 2-21

APPLICANT B

Woman
7-9
10% lower wage than the employee
Day 2-14 + COFIN

1 Hire A

2 A and B similar

3 Hire B

Experiment: Validity

- Strategic/hypothetical bias may be a concern, especially in cases where a high value is 'desirable'
- Ways to handle such bias:
 - Respondents should be given sufficient information about the good (person) that they are asked to value
 - Respondents should be provided with a reference to compare the alternatives against
 - Respondents should be allowed to make any choice or to opt-out
- Any remaining bias should be against discrimination

Data and estimation: Sample

- 1,000 workplaces in Stockholm County with more than 20 employees
- Stratified sampling based on sector, size and gender composition
- Survey administrated by Statistics Sweden
- Response rate: 46 percent
- Sample: 426 workplaces – 4,895 observations

Data and estimation: Sample

	Fraction of workplaces
<i>Sector:</i>	
Private	65%
Public	28%
Other	7%
<i>Number of employees:</i>	
20-49	47%
50-99	25%
100-249	14%
>249	14%
<i>Percentage women:</i>	
1-40%	38%
40-60%	24%
60-100%	38%

Data and estimation: Estimation

- The degree of discrimination
 - Main effects in the full sample
 - Invitations to job interviews (callback rate)
 - Job offers (job offer rate and marginal value in terms of the wage)
- The effect on the degree of discrimination of varying the firms' cost of uncertainty in hiring (extent of firm co-payment in sickness benefits)
 - Interaction effects in the full sample
- The degree of discrimination in subgroups of recruiters and firms
 - Main effects in subgroups
 - Job offers (marginal value in terms of the wage)

Results: The degree of discrimination – Callback rate to job interviews

<i>Gender (ref: male):</i>	
Female	-0.01 (0.04)
<i>Age (ref: 29 years or younger):</i>	
30-55 years	0.12** (0.05)
>55 years	-0.64*** (0.05)
<i>Education (ref: lowest quartile):</i>	
Middle quartiles	0.63*** (0.06)
Highest quartile	0.82*** (0.05)
<i>Experience (ref: <5 years):</i>	
5-7 years	0.13** (0.06)
>7 years	0.12** (0.06)
<i>Wage:</i>	
Wage	-0.01*** (0.00)
<i>Sickness benefits (ref: 3 weeks full firm payment):</i>	
2 weeks full firm payment	0.09** (0.04)
2 weeks full firm payment plus 15% co-payment	-0.07** (0.04)

Results: The degree of discrimination – Job offer rate

	Job offer rate	Marginal value
<i>Gender (ref: male):</i>		
Female	0.00 (0.03)	0.10 (1.62)
<i>Ethnicity (ref: Nordic):</i>		
Other European	-0.02 (0.06)	-0.94 (3.34)
Africa, Middle East, South America	-0.28*** (0.06)	-16.24*** (3,67)
<i>Religious belief (ref: Christian):</i>		
Jewish	-0.26*** (0.06)	-15.02*** (3.61)
Muslim	-0.30*** (0.06)	-17.19*** (3.78)
<i>Children (ref: no children):</i>		
1 child	-0.09 (0.06)	-5.06 (3.32)
2 or more children	-0.25*** (0.06)	-14.58*** (3.40)

Results: The degree of discrimination – Job offer rate

	Job offer rate	Marginal value
<i>Weight (ref: normal weight):</i>		
Overweight	-0.13** (0.06)	-7.68** (3.29)
Obese	-0.83*** (0.05)	-48.08*** (4.91)
<i>Wage:</i>		
Wage	-0.02*** (0.00)	-
<i>Intensity of sickness absence (ref: 1-2 times per year):</i>		
3-5 times per year	-0.41*** (0.05)	-23.85*** (3.33)
6 or more times per year	-0.83*** (0.05)	-48.03*** (4.57)
<i>Frequency of sickness absence (ref: 7 or less days):</i>		
8-14 days each time	-0.29*** (0.04)	-16.57*** (2.94)
15 or more days each time	-0.55*** (0.05)	-31.69*** (3.63)
<i>Sickness benefit (ref: 3 weeks full firm payment):</i>		
2 weeks full firm payment	0.13*** (0.03)	7.24*** (1.69)
2 weeks of full firm payment plus 15% copayment	-0.09*** (0.03)	-4.97*** (1.53)

Results: The degree of discrimination – Results

- Discrimination against applicants who are:
 - Old
 - Non-European
 - Jewish or Muslim
 - Have several children
 - Obese
 - Have a history of sickness absence
- The degree of the discrimination is substantial
 - Wage reductions of up to 50 percent are needed to make employers indifferent between applicants with and without some worker characteristics

Results: Varying the firms' cost of uncertainty in hiring

- If statistical discrimination is important, the degree of discrimination should be affected by the extent of firm co-payment in the sickness benefit system
- More co-payment → Firms' more reluctant to hire workers with a high risk of sickness absence
- More co-payment → Firms' more reluctant to hire all workers they perceive as risky
- Estimate the model with interaction effects between the worker characteristics and the types of firm co-payment

Results: Varying the firms' cost of uncertainty in hiring

	2 weeks	2 weeks plus 15%
<i>Gender (ref: male):</i>		
Female	0.02 (0.06)	-0.05 (0.05)
<i>Age (ref: 29 years or younger):</i>		
30-55 years	-0.14** (0.07)	0.04 (0.07)
>55 years	-0.08 (0.08)	-0.03 (0.07)
<i>Education (ref: lowest quartile):</i>		
Middle quartiles	0.08 (0.11)	0.08 (0.10)
Highest quartile	0.12 (0.09)	0.23*** (0.09)
<i>Experience (ref: <5 years):</i>		
5-7 years	0.02 (0.10)	0.28** (0.12)
>7 years	0.00 (0.11)	0.18* (0.10)

Results: Varying the firms' cost of uncertainty in hiring

	2 weeks	2 weeks plus 15%
<i>Gender (ref: male):</i>		
Female	-5.52** (2.63)	2.19 (2.28)
<i>Ethnicity (ref: Nordic):</i>		
Other European	-8.31 (5.46)	-5.56 (4.93)
Africa, Middle East, South America	6.52 (5.34)	6.60 (4.89)
<i>Religious belief (ref: Christian):</i>		
Jewish	11.67** (5.43)	-0.27 (4.78)
Muslim	18.99*** (6.53)	14.82*** (5.47)
<i>Children (ref: no children):</i>		
1 child	-3.53 (4.70)	-4.18 (4.77)
2 or more children	4.27 (4.53)	0.85 (4.66)
<i>Weight (ref: normal weight):</i>		
Overweight	-8.38* (5.05)	-1.89 (4.36)
Obese	-8.71* (4.65)	2.75 (4.07)
<i>Intensity of sickness absence (ref: 1-2 times per year):</i>		
3-5 times per year	3.99 (4.28)	2.80 (3.93)
6 or more times per year	-5.42 (3.98)	-7.69** (3.77)
<i>Frequency of sickness absence (ref: 7 or less days):</i>		
8-14 days each time	-0.13 (3.98)	-2.33 (3.77)
15 or more days each time	-2.83 (4.50)	-1.92 (3.92)

Results: Varying the firms' cost of uncertainty in hiring – Results

- Little evidence of any systematic relationship between the degree of discrimination and the extent of firm co-payment in the sickness benefit system
- May be interpreted as evidence against statistical discrimination, but may also reflect that the firms' total cost of worker absence is high in all three sickness benefit schemes
- Future studies: Introduce more variation

Results: The type of recruiter and firm

- If statistical discrimination is important, the degree of discrimination should be similar irrespectively of the type of recruiter
- If statistical discrimination is important, the degree of discrimination should be bigger in small firms than in large firms
- Estimate the model on subgroups defined by the type of recruiter (gender, age, ethnicity, etc.) and firm (sector, size, etc.)

Results: The type of recruiter and firm – Results

- The degree of discrimination is similar irrespective of the type of the recruiter
- The degree of discrimination is bigger in small firms than in large firms
- Supportive of statistical discrimination, but some results are consistent with preference-based discrimination

Conclusions

- Discrimination against applicants who are:
 - Old
 - Non-European
 - Jewish or Muslim
 - Have several children
 - Obese
 - Have a history of sickness absence
- The degree of the discrimination is substantial
 - Corresponds to wage reduction of up to 50 percent
- More firm co-payment may reduce hiring, but does not affect the degree of discrimination
- Small differences in the degree of discrimination between different types of recruiters and firms

Conclusions – Policy implications

- Important with measures that prevent statistical discrimination
- To use wages to eliminate discrimination, require large wage (labor cost) differentials between workers with and without some characteristics
- More firm co-payment in social insurance systems may reduce hiring, but may not affect vulnerable groups more than other groups
- Stated choice experiments have the potential to be an important tool for analyzing discrimination and policy changes

Data and estimation: Sample

Table A3 The characteristics of the recruiters

Personal characteristics		Education and experience		History of sickness absence and health	
<i>Gender:</i>		<i>Education:</i>		<i>Sickness absence last 12 months:</i>	
Female	64%	Primary	3%	Yes	36%
Male	36%	Secondary	18%	No	64%
		University	79%		
<i>Age:</i>		<i>Position:</i>		<i>Frequency of sickness absence:</i>	
<30 years	3%	General manager	29%	1-2 times per year	94%
30-55	73%	Personnel manager	31%	3-5 times per year	6%
>55 years	24%	Other	40%	6 or more times per year	0%
<i>Number of children:</i>		<i>Tasks:</i>		<i>Intensity of sickness absence:</i>	
No children	18%	Recruitment	90%	7 or less days each time	93%
One child	14%	Personnel policy	82%	8-14 days each time	3%
Two or more children	68%	Rehabilitation	71%	15 or more days each time	4%
<i>Country of birth:</i>		<i>Experience working with these issues:</i>		<i>Weight for men:</i>	
Sweden	90%	At least 4 years	80%	Underweight	3%
Other Nordic countries	7%	Less than 4 years	20%	Normal weight	26%
Other European countries	2%			Overweight	57%
Outside Europe	1%			Obese	14%
<i>Religious beliefs:</i>				<i>Weight for women:</i>	
Christian	76%			Underweight	6%
Jewish	0%			Normal weight	44%
Muslim	0%			Overweight	43%
Other	1%			Obese	7%
Atheist/agnostic	17%				
Don't know	6%				

Data and estimation: Sample

Table A4 The characteristics of the last employee

Personal characteristics		Education and experience		History of sickness absence and health	
<i>Gender:</i>		<i>Education:</i>		<i>Sickness absence last 12 months:</i>	
Female	49%	Primary	8%	Yes	32%
Male	51%	Secondary	39%	No	66%
		University	53%	Don't know	2%
<i>Age:</i>		<i>Qualifications:</i>		<i>Frequency of sickness absence</i>	
<30 years	22%	Unqualified/lowest quartile	8%	1-2 times per year	46%
30-55	69%	Middle quartiles	47%	3-5 times per year	33%
>55 years	9%	Highest quartile/overqualified	41%	6 or more times per year	16%
		Don't know	4%	Don't know	5%
<i>Number of children:</i>		<i>Years of experience:</i>		<i>Intensity of sickness absence:</i>	
No children	37%	4 years or less	24%	7 or less days each time	80%
One child	15%	5-7 years	20%	8-14 days each time	7%
Two or more children	39%	8 years or more	52%	15 or more days each time	11%
Don't know	9%	Don't know	4%	Don't know	2%
<i>Country of birth:</i>		<i>Tenure in the firm:</i>		<i>Weight for men:</i>	
Sweden	84%	4 years or less	56%	Underweight	19%
Other Nordic countries	3%	5-7 years	25%	Normal weight	40%
Other European countries	3%	8 years or more	19%	Overweight	32%
Outside Europe	5%			Obese	9%
Don't know	5%				
<i>Religious beliefs:</i>		<i>Wage:</i>		<i>Weight for women:</i>	
Christian	65%	Mean	26,800	Underweight	26%
Jewish	0%	Median	25,000	Normal weight	38%
Muslim	2%			Overweight	28%
Other	0%			Obese	8%
Atheist/agnostic	5%				
Don't know	27%				

Data and estimation: Estimation

- Estimate the main effect of all characteristics and some interactions
- Previous employee: $\mathbf{z}^0 = (\mathbf{x}^0, w^0)$
- Hypothetical applicants: $\mathbf{z}_1 = (\mathbf{x}_1, w_1, I_1)$ and $\mathbf{z}_2 = (\mathbf{x}_2, w_2, I_2)$
- Employer's utility: $U_e(\mathbf{z}_{ig}) = \alpha_{eg} + \mathbf{x}_{ig}\alpha + I_{ig}\gamma + (I_{ig}\mathbf{x}_{ig})\delta - w_{ig}\beta + \eta_{ige}$
- Marginal value of each characteristic: $\frac{\partial w}{\partial x_k} = \frac{\partial U_e(\mathbf{z}_{ig}) / \partial x_{igk}}{\partial U_e(\mathbf{z}_{ig}) / \partial w_{ig}} = \frac{\alpha_k + I_{ig}\delta_k}{-\beta}$
- Estimation equation (OLS):

$$y_{1eg} - y_{2eg} = (\mathbf{x}_{1g} - \mathbf{x}_{2g})\alpha + (I_{1g} - I_{2g})\gamma + (I_{1g}\mathbf{x}_{1g} - I_{2g}\mathbf{x}_{2g})\delta - (w_{1g} - w_{2g})\beta + \eta_{1eg} - \eta_{2eg}$$