

# EMPIRICAL RESEARCH ON ECONOMIC INEQUALITY: IDENTIFYING DISCRIMINATION THROUGH EXPERIMENTS



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# OVERVIEW

## ■ Economic discrimination

- Definition
- Types of discrimination

## ■ Types of research

- Vignette Studies
- Anonymous applications
- Audit studies
- Correspondence tests

## ■ Identifying statistical discrimination and taste for discrimination

- Heckman critique
- Neumark's method

# ECONOMIC DISCRIMINATION

Individuals with identical characteristics of productivity are treated differently because of their differing memberships to social groups (e.g. gender, race/ethnicity, religion, sexual orientation,...).

Does discrimination exist in competitive markets?

# TYPES OF DISCRIMINATION

## TASTE FOR DISCRIMINATION (TFD)

- Gary Becker (1957)
- Discrimination: Personal prejudice against a certain group of people (minority)
  - by employers [w: wage; d: TfD]
    - $w_A = w_B + d$
    - $d_j \geq w_A - w_B \rightarrow$  hires A;  $d_j < w_A - w_B$  hires B
  - by employees (coworkers)
  - by customers
- Effect depends on
  - level of discrimination within the labor market/sector
  - number of minority workers

# **TYPES OF DISCRIMINATION**

## **STATISTICAL DISCRIMINATION (SD)**

- Edmund Phelps (1972); Kenneth Arrow (1973)
- Stereotyping based on assumed group averages
- Employers have incomplete information about the productivity of individual job applicants.
- Hiring decisions based on (beliefs about) group averages
- Effect depends on
  - how much information is available
  - differences across groups

# TYPES OF DISCRIMINATION

Why is it important to distinguish between TfD and SD?

# **TYPES OF RESEARCH**

## **VIGNETTE STUDIES**

- Laboratory experiments: “Simulated Personnel Decisions”
- Rosen & Jerdee (1974)
  - male bank managers recommend promotions/terminations in given scenarios
  - fewer promotions for females; more terminations under male supervisors
- Blommaert et al. (2014)
  - students rate CVs on suitability for job; choose 3
  - slightly lower rankings & selection ratio for Moroccan/Turkish applicants (compared to Dutch)

# TYPES OF RESEARCH

## ANONYMOUS APPLICATIONS

- Natural experiments

- Goldin & Rouse (2000)

- blind auditions in orchestras increase the likelihood for a female musician to be hired by 25%

- Krause et al. (2012)

- anonymized job applications of female PhD economists decreased chances for an interview





# **TYPES OF RESEARCH AUDIT STUDIES**

- Field experiments
- Fake job candidates apply in person
- Neumark, Bank & van Nort (1995)
  - in high-price restaurants, male applicants receive significantly more job interviews and job offers than female applicants
  - in low-price restaurants results are reversed.

# **TYPES OF RESEARCH**

## **CORRESPONDENCE TESTS**

- Field experiments
- Applications of fictitious candidates are posted in response to job openings
- Bertrand & Mullainathan (2004)
  - fictitious candidates with “White-sounding” names receive significantly more callbacks than applicants with Afro-American names

# CORRESPONDENCE TESTS

## AN AUSTRIAN CASE

■ Weichselbaumer (2015a)

■ 10 candidates (5 female, 5 male)

- Austrian, Serbian, Turkish, Chinese and Nigerian origin (indicated by name and photo)
- AT citizens; education and experience gained in AT

	Callbacks	N	Callback rate (in %)	Ratio†	t-values	p-values
Austrian	335	905	37.0			
Serbian	85	301	28.2	1.31***	2.7755	0.0056
Turkish	77	304	25.3	1.46***	3.7382	0.0002
Chinese	86	317	27.1	1.37***	3.1986	0.0014
Nigerian	59	315	18.7	1.98***	6.0625	0.0000
Total	642	2142	30.0			

Note: † Significant difference in callback rates: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

# SELECTED CORRESPONDENCE TESTS

Study	Location	Discrimination based on...	Callbacks (sign. results)	no sign differences
Weichselbaumer (2004)	Austria	gender/type (fw,mw,m)	fw : mw : m technician: 58% : 63% : 73% secretary: 44% : 46% : 20%	computer programmer, accountant
Neumark et al. (2015)	12 US cities	age	young (29-31): 19% middle (49-51): 15% old (64-66): 12%	
Weichselbaumer (2015b)	Germany (Munich, Berlin)	sexual orientation among women	Munich: single hetero: 45% married hetero: 42% single lesbian: 33% partnered lesbian: 33%	Berlin
Ruffle & Shtudiner (2015)	Israel	attractiveness	attr. m: 20% plain m: 9% no pic m: 14% attr. w: 13% plain w: 14% no pic w: 17%	attr. w - plain w
Ameri et al. (2015)	USA	disability (Asperger's Syndrome; spinal cord injury)	experienced applicants: disability: 2% non-disability: 4%	novice resumes, between disability types

# **CORRESPONDENCE TESTS**

## **ADDITIONAL COMPONENTS**

- Oreopoulos (2011): recruiters' responses (qualitative)
  - asked 300 recruiters to explain corr. test results
  - recruiters' main argument: language skills
- Bartoš et al. (2014): „Attention Discrimination“
  - Email applications include link to personal website/CV
  - cherry-picking vs lemon dropping markets
  - employers acquire more info on majority applicants
  - landlords acquire more information on minority applicants

# TYPES OF RESEARCH COMPARISON

	<b>Vignette Studies</b>	<b>Anonymous Applications</b>	<b>Audit Studies</b>	<b>Correspond. Test</b>
<b>type</b>	laboratory experiment	natural experiment	field experiment	field experiment
<b>variable of interest</b>	hypothetical interview/ hiring	(interview)/ hiring	hiring	interview
<b>control over applicants' characteristics</b>	high	very low	low	high
<b>impact of applicants</b>	not possible	depends on design	possible	not possible
<b>applicability across sectors</b>	high	low	medium	high
<b>costs relative to sample size</b>	low	depends on setting	high	low

# CORRESPONDENCE TESTS

## SD OR TFD?

### ■ Carlsson & Rooth 2008

### ■ 3 applicants:

1. Swedish native with Swedish name; Swedish qualifications
2. Swedish native with Middle-Eastern name; Swedish qual.
3. Middle-Eastern native with Middle-Eastern name; foreign qual.

### ■ Assumptions:

- Difference in callbacks between 1 and 2: TfD
- Difference in callbacks between 2 and 3: SD

### ■ Callback-rates

applicant 1	41%
applicant 2	24%
applicant 3	20%

# CORRESPONDENCE TESTS

## SD OR TFD?

### ■ Kaas & Manger 2012

- Student internships in economics/business (Germany)
- 4 applicants: 2 each with German/Turkish name; 2 with additional documents

### ■ Assumption: Difference in callbacks based on name only: Tfd

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Callback rate	Type A (%)	Type B (%)
German name	41.8 (110 out of 263 applications)	37.4 (99 out of 265 applications)
Turkish name	32.5 (86 out of 265 applications)	36.9 (97 out of 263 applications)

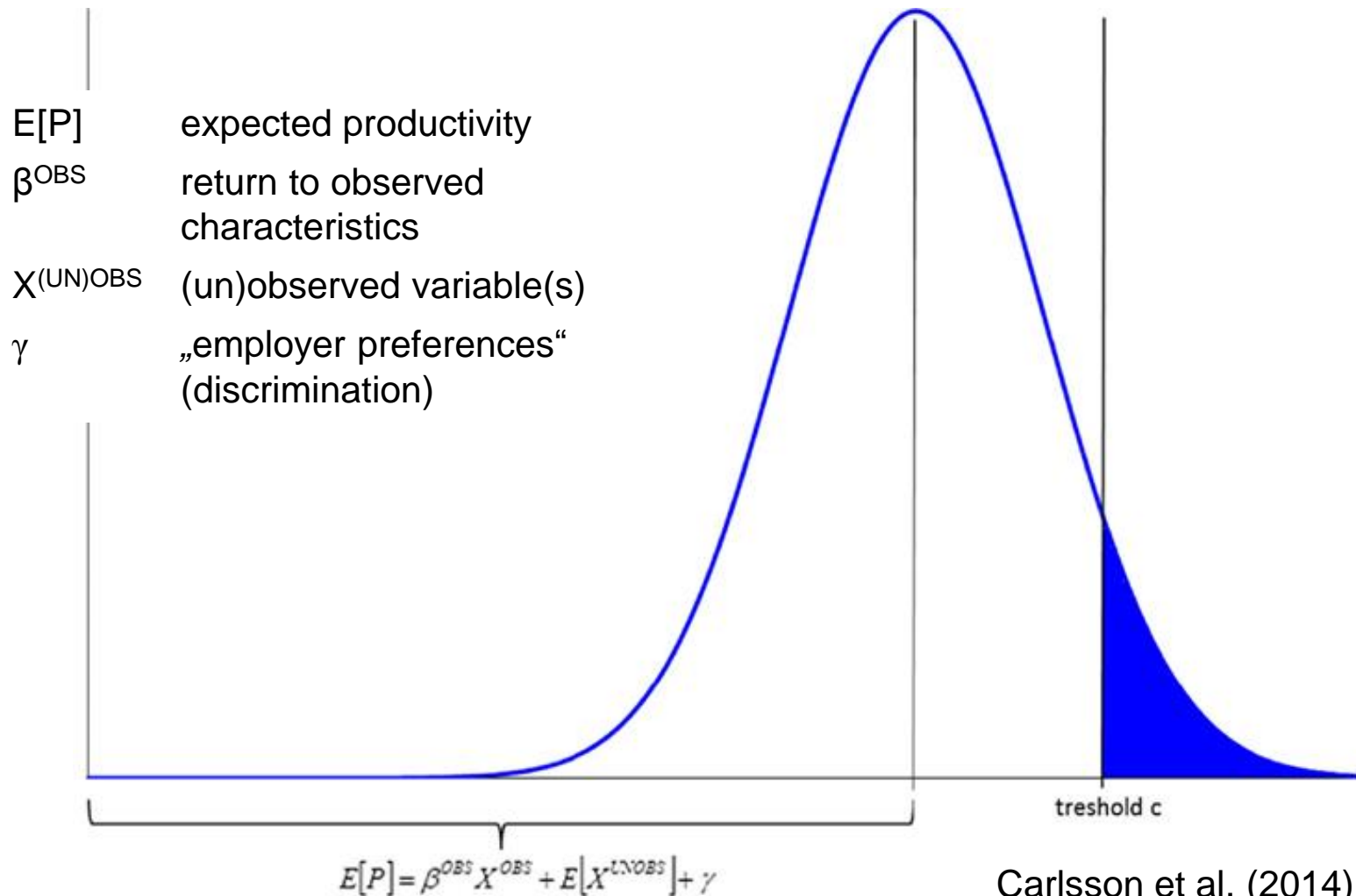
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*Notes:* Applications of type B contain two reference letters with information about the applicant's personality, those of type A do not.

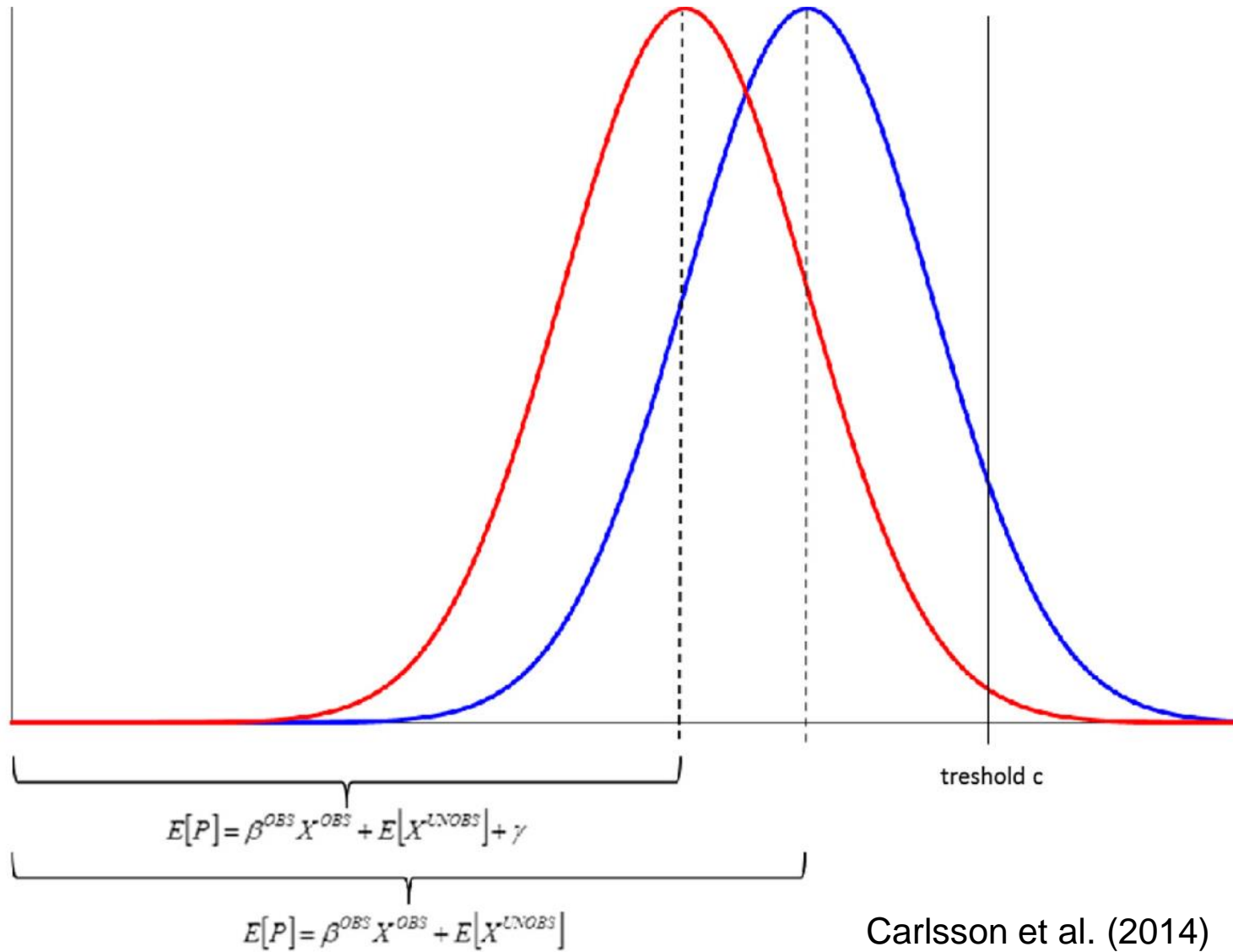


# HECKMAN CRITIQUE

Heckman & Siegelman (1993); Heckman (1998)

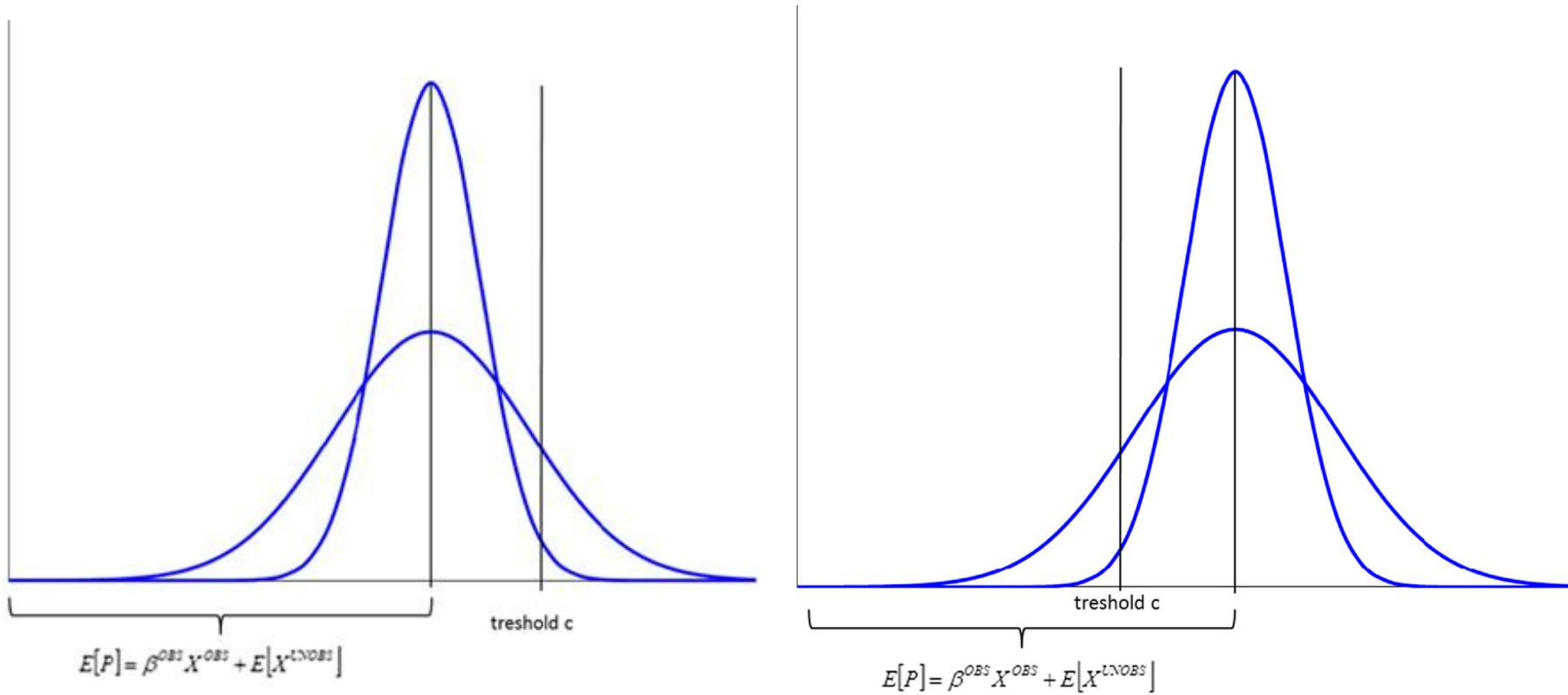


# HECKMAN CRITIQUE



Carlsson et al. (2014)

# HECKMAN CRITIQUE



Carlsson et al. (2014)

# NEUMARK'S METHOD

■ Neumark (2012): applied Heckman to Bertrand & Mullainathan (2004)

■ **Problem:** how to separate effects of race ( $\gamma$ ) and difference in variance of  $X^{\text{UNOBS}}$ ?

■ **Approach:**

higher variance of  $X^{\text{UNOBS}}$   $\rightarrow$  smaller effect of  $X^{\text{OBS}}$  on probability to exceed threshold

variation of  $X^{\text{OBS}}$   $\rightarrow$  change in callbacks?

# NEUMARK'S METHOD

*Heteroskedastic Probit Estimates for Callbacks: Full Specifications*

	Males and females		Females	
	(1)	(2)	(3)	(4)
A. Estimates from basic probit (Table 1)				
Black	-0.030 (0.006)	-0.030 (0.006)	-0.030 (0.007)	-0.030 (0.007)
B. Heteroskedastic probit model				
Black (unbiased estimates)	-0.024 (0.007)	-0.026 (0.007)	-0.026 (0.008)	-0.027 (0.008)
Marginal effect of race through level	-0.086 (0.038)	-0.070 (0.040)	-0.072 (0.040)	-0.054 (0.040)
Marginal effect of race through variance	0.062 (0.042)	0.045 (0.043)	0.046 (0.045)	0.028 (0.044)

[Additional controls for neighborhood characteristics (2) & (4)]

Neumark (2012)

# CONCLUSION

- Various forms of discrimination exist in the labor market – some are intended to maximize profit, some are not.
- Empirical research uses different ways to identify discrimination.
- Research designs are relevant for the interpretation of results.
- Identifying TfD/SD is possible but depends on research design.
  - ➔ important for policy approaches

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