

Baert, Stijn

**Working Paper**

## Hiring Discrimination: An Overview of (Almost) All Correspondence Experiments Since 2005

IZA Discussion Papers, No. 10738

**Provided in Cooperation with:**

IZA – Institute of Labor Economics

*Suggested Citation:* Baert, Stijn (2017) : Hiring Discrimination: An Overview of (Almost) All Correspondence Experiments Since 2005, IZA Discussion Papers, No. 10738, Institute of Labor Economics (IZA), Bonn

This Version is available at:

<http://hdl.handle.net/10419/161361>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

DISCUSSION PAPER SERIES

IZA DP No. 10738

**Hiring Discrimination: An Overview of  
(Almost) All Correspondence Experiments  
Since 2005**

Stijn Baert

APRIL 2017

## DISCUSSION PAPER SERIES

IZA DP No. 10738

# Hiring Discrimination: An Overview of (Almost) All Correspondence Experiments Since 2005

**Stijn Baert**

*Ghent University, University of Antwerp,  
Université catholique de Louvain and IZA*

APRIL 2017

Any opinions expressed in this paper are those of the author(s) and not those of IZA. Research published in this series may include views on policy, but IZA takes no institutional policy positions. The IZA research network is committed to the IZA Guiding Principles of Research Integrity.

The IZA Institute of Labor Economics is an independent economic research institute that conducts research in labor economics and offers evidence-based policy advice on labor market issues. Supported by the Deutsche Post Foundation, IZA runs the world's largest network of economists, whose research aims to provide answers to the global labor market challenges of our time. Our key objective is to build bridges between academic research, policymakers and society.

IZA Discussion Papers often represent preliminary work and are circulated to encourage discussion. Citation of such a paper should account for its provisional character. A revised version may be available directly from the author.

## ABSTRACT

---

# Hiring Discrimination: An Overview of (Almost) All Correspondence Experiments Since 2005\*

This chapter aims to provide an exhaustive list of all (i.e. 90) correspondence studies on hiring discrimination that were conducted between 2005 and 2016 (and could be found through a systematic search). For all these studies, the direction of the estimated treatment effects is tabulated. In addition, a discussion of the findings by discrimination ground is provided.

**JEL Classification:** C93, J71

**Keywords:** discrimination, hiring, field experiments, correspondence experiments, correspondence tests

**Corresponding author:**

Stijn Baert  
Ghent University  
Sint-Pietersplein 6  
9000 Gent  
Belgium  
E-mail: [Stijn.Baert@UGent.be](mailto:Stijn.Baert@UGent.be)

---

\* Prepared for the handbook 'Audit Studies: Behind the Scenes with Theory, Method, and Nuance' (edited by S. Michael Gaddis and published by Springer).

**Prepared for the handbook ‘Audit Studies: Behind the Scenes with Theory, Method, and Nuance’ (edited by S. Michael Gaddis and published by Springer)**

## **1 Triple Goal**

The lack of labour market integration of vulnerable groups, such as refugees and other individuals with a migration background, the elderly, and people with a mental or physical health impairment, has received much attention in both policy and academic circles in the past decade (OECD, 2008a; OECD, 2010). For policymakers, it is important to understand what factors cause this lack of integration in order to design the appropriate integration policies. Academic scholars have suggested discrimination in hiring as one important factor contributing to the poor labour market integration of these individuals (Altonji & Blank, 1999; OECD, 2008b). However, it is very challenging to measure discrimination in hiring, which makes it difficult to distinguish the effect of discrimination on employment from the effect of other factors, such as differences in human capital and other skills.

Historically, scholars have measured hiring discrimination through statistical analysis of non-experimental (survey or administrative) data. A commonly used approach has been to try to control for as many observed individual factors as possible, such as education, experience, and occupation, and then interpret any unexplained part in employment between groups as pointing in the direction of discrimination (Blinder, 1973; Oaxaca, 1973). In general, these studies are likely to suffer from an important endogeneity bias, because job applicants who appear similar to researchers (except for their discrimination ground), based on non-experimental data, might in fact appear to be different to employers. For example, administrative data seldom contain information about language skills of individuals with a migration background, but this is likely to be observed by the employer, perhaps at a job interview. As long as not all relevant variables, taken into account by employers in making their hiring decisions, are controlled by the researcher, no conclusive proof of discrimination can be provided.

In response to this methodological problem, and inspired by the seminal work of Bertrand and Mullainathan (2004), scholars in labour economics, sociology of labour, and personnel psychology during the past decade have turned to so-called correspondence experiments to measure hiring discrimination. In these experiments, fictitious job applications, differing only

in a randomly assigned discrimination ground, are sent in response to real job openings. By monitoring the subsequent call-back from employers, unequal treatment based on this single characteristic is identified and can be given a causal interpretation.

Not surprisingly, given the seminal status of the correspondence experimentation framework<sup>1</sup> and the numerous academic studies that have adopted this framework, during the past years, scholars have written reviews and meta-analyses concerning this literature. We are aware of four such meta-studies: Bertrand and Duflo (2016), Neumark (in press), Rich (2014), and Zschirnt and Ruedin (2016). While all are inspiring high-quality syntheses, with excellent policy links and clever directions for further research, they share two limitations. First, these studies focus on an in-depth review of the field experimental evidence on labour market discrimination based on some grounds, while neglecting other grounds based on which unequal treatment is also forbidden. Second, none of these studies attempt to provide the reader with an exhaustive list of all experiments (conducted during a particular time frame). They all seem to focus on the better known (i.e. from their own country or highly cited) experiments while neglecting complementary work.

This chapter has a different ambition. It starts with identifying all discrimination grounds based on which unequal treatment is prohibited in at least one state of the United States and then provides the reader with a register of all correspondence experiments conducted (later than Bertrand and Mullainathan (2004)) to measure these forms of discrimination. Given that the information provided for each study (i.e. particular treatment, country, and sign of the effect) is kept very limited—no effect size information is provided—this chapter has to be seen as a working instrument rather than as a classical review.

The register we will present serves three goals. First, it serves as a reference table to which later chapters of this book will refer. Second, and more broadly, it can be used by scholars in search of a catalogue of all correspondence experiments on hiring discrimination based on a (cluster of) particular ground(s). Third, it implicitly indicates potentially fruitful directions for future correspondence experiments, as it unambiguously shows where the lacunae in this

---

<sup>1</sup> Some deficiencies of the method were discussed in Chapter 2.

literature are, i.e. the discrimination grounds and regions to which researchers have paid little attention.

## 2 Scope

The register discussed in the next section is the result of a systematic search for correspondence experiments conducted after Bertrand and Mullainathan (2004) with the aim of measuring forms of unequal treatment in hiring which are prohibited by law in at least one state of the United States, i.e. the country in which the most correspondence experiments have been conducted. So, correspondence experiments included to assess the causal effect of, e.g., other cv characteristics such as juvenile delinquency, student employment and (former) unemployment spells were not included (Baert & Verhofstadt, 2015; Baert et al., 2016d; Kroft et al., 2013; Eriksson & Rooth, 2014).

Under US federal law, unequal treatment is forbidden based on nine (clusters of) discrimination grounds: (A) race and national origin, (B) gender and pregnancy, (C) religion, (D) disability, (E) (older) age, (F) military service or affiliation, (G) wealth, (H) genetic information, and (I) citizenship status.<sup>2</sup> With respect to (B), discrimination based on motherhood is also prohibited in Alaska<sup>3</sup> and California.<sup>4</sup> Finally, discrimination based on (J) marital status,<sup>5</sup> (K) sexual orientation and gender identity,<sup>6</sup> (L) political affiliation,<sup>7</sup> (M) union affiliation,<sup>8</sup> and (N) physical appearance<sup>9</sup> is forbidden in at least one state.

With this list of discrimination grounds at hand, a key word search (for the word groups ‘correspondence test’, ‘correspondence experiment’, ‘correspondence study’, ‘fictitious resume’, ‘fictitious cv’, ‘fictitious application’, and ‘field experiment’ in combination with

---

<sup>2</sup> Source: <https://www.eeoc.gov/>.

<sup>3</sup> Source: <http://touchngo.com/lglcntr/akstats/Statutes/Title18/Chapter80/Section220.htm>.

<sup>4</sup> Source: <http://www.dfeh.ca.gov/>.

<sup>5</sup> Source: <http://touchngo.com/lglcntr/akstats/Statutes/Title18/Chapter80/Section220.htm>.

<sup>6</sup> Source: [www.ilga.gov/legislation/ilcs/ilcs5.asp?ActID=2266](http://www.ilga.gov/legislation/ilcs/ilcs5.asp?ActID=2266).

<sup>7</sup> Source: <http://www.dfeh.ca.gov/>.

<sup>8</sup> Source: <http://www.lexisnexis.com/hottopics/michie/>.

<sup>9</sup> Source: [https://www.law.hawaii.edu/files/downloads/LAW%20589%20Appearance%20Discrimination\\_0.doc](https://www.law.hawaii.edu/files/downloads/LAW%20589%20Appearance%20Discrimination_0.doc).

‘discrimination’) was conducted on three sources: Web of Science, Google Scholar, and the IZA Discussion Paper Series. This exercise was followed by the screening of all references in the relevant articles found and the screening of the studies citing these relevant articles.

### **3 The Register**

Table 1 provides the reader with an overview of all studies (after Bertrand and Mullainathan (2004) of which we are aware that build on correspondence experiments aimed at measuring discrimination based on one of the grounds mentioned in the previous section. The unit of observation is the individual correspondence experiment. For each such experiment, there is a cell in column (3) of Table 1. Some cells contain more than one study, meaning that the studies exploited the same experimental data. Some studies focussed on more than one discrimination ground, and are therefore mentioned in more than one cell: Agerström et al. (2012), Albert et al. (2011), Arceo-Gomez and Campos-Vazques (2014), Banerjee et al. (2009), Berson (2012), Capéau et al. (2012), Patacchini et al. (2015), Pierné (2013), and Stone and Wright (2013).

In total, we are aware of 90 correspondence experiments conducted between 2005 and 2016 with the aim of measuring discrimination based on prohibited grounds in at least one state of the United States. For 37 of these experiments, the focus (at least partly) was on measuring ethnic discrimination. Other commonly investigated discrimination grounds were gender (14 field experiments), age (11 experiments), and sexual orientation (12 experiments). In addition, at least five experiments focussed on religion, disability, and physical appearance as determinants of employers’ hiring decisions. Only three experiments had a wealth-related focus and only two were related to military experience. Only one experiment has been conducted on hiring discrimination based on political affiliation and union membership. We are not aware of any experiments measuring unequal treatment based on genetic information, nor have any experiments—somewhat surprisingly given the massive migration flows to Europe in recent years—investigated citizenship status as a discrimination ground.



### 3.1 Treatment and Treatment Effects

As can be seen in column (1) of Table 1, for many discrimination grounds studied, a variety of particular treatments strategies have been used. For instance, ethnic origin is mostly revealed by means of the names of the candidates. The various minority groups studied are always groups that are substantially represented in the country where the data gathering took place. Alternative designs have disclosed ethnic origin by means of adding a resume picture or revealing one's nationality.

Column (4) shows the average treatment effect for each experiment (averaged across all vacancies and neglecting analyses by subsamples as presented in many studies). Overall, an overwhelming majority of the studies report negative treatment effects (i.e. discrimination of the group hypothesised to be discriminated against). More concretely, 80 (i.e. 78.4%) treatment effects are significantly negative, 17 (i.e. 16.7%) are insignificantly different from 0, and 5 (i.e. 4.6%) are significantly positive.<sup>10</sup>

Most of the cases document discrimination against ethnic minorities. There are two important exceptions with respect to this empirical pattern. First, in two recent studies with experiments conducted in the United States, no ethnic discrimination in hiring was found (Darolia et al., 2016; Decker et al., 2015). Second, in Malaysia the (expected) unfavourable treatment of the ethnic *majority* was found (Lee & Khalid, 2016).<sup>11</sup> In addition, research in Belgium (Baert & Vujić, 2016; Baert et al., 2015; Baert et al., 2017) revealed situations in which ethnic discrimination disappeared there, i.e. when ethnic minorities mentioned volunteer work for mainstream organisations, when they applied for occupations in which labour market tightness was high, and when they had many years of work experience. For an in-depth review of a selection of the studies in Panel A of Table 1, we refer to Bertrand and Duflo (2016), Neumark (in press), Rich (2014), and Zschirnt and Ruedin (2016).

---

<sup>10</sup> These numbers do not sum up to 90, as some studies were included multiple times in Table 1 (as mentioned in the first paragraph of Section 3).

<sup>11</sup> In general, comparing the results across the rows of Table 1 is very tricky, as the experiments differed substantially with respect to at least the following characteristics of their design: (i) region of the experiment; (ii) experimental population (e.g., with respect to age and education level); and (iii) sectors, occupations, and vacancies tested.

**Table 1** Register of correspondence experiments conducted between 2005 and 2016 with the aim of measuring discrimination based on prohibited grounds in US law

(1) Treatment	(2) Country of analysis	(3) Study	(4) Effect
<b>A. Discrimination ground: Race and national origin</b>			
A.1. African (versus native) name	France	Cediey & Foroni (2008)	-
		Edo et al. (2013)	-
	US	Nunley et al. (2015)	-
		Gaddis (2015)	-
		Jacquemet & Yannelis (2012)	-
Agan & Starr (2016)	-		
A.2. African or Hispanic (versus native) name	Sweden	Bursell (2014)	-
	US	Darolia et al. (2016)	0
		Decker et al. (2015)	0
A.3. African, Asian, or German (versus native) name	Ireland	McGinnity & Lunn (2011)	-
A.4. African, Caribbean, Indian, or Pakistani (versus native) name	UK	Wood et al. (2009)	-
A.5. Albanian (versus native) name	Greece	Drydakis & Vlassis (2010) and Drydakis (2012a)	-
A.6. Antillean, Moroccan, Surinamese, or Turkish (versus native) name	Netherlands	Andriessen et al. (2012)	-
A.7. Arabian (versus native) name	Netherlands	Derous et al. (2012)	-
		Blommaert et al. (2014)	-
	Sweden	Agerström et al. (2012)	-
	US	Widner & Chicoine (2011)	-
A.8. Asian or Roma (versus native) name	Czech Republic	Bartoš et al. (2014)	-
A.9. Chinese, Greek, Indian, or Pakistani (versus native) name	US	Oreopoulos (2011)	-
A.10. Chinese, Indigenous, Italian, or Middle-Eastern (versus native) name	Australia	Booth et al. (2012)	-
A.11. Chinese, Nigerian, Serbian, or Turkish (versus native) name and appearance	Austria	Weichselbaumer (in press)	-
A.12. Congolese, Moroccan, Italian, or Turkish (versus native) name	Belgium	Capéau et al. (2012)	-

A.13. Ghanaian, Moroccan, Turkish, or Slovakian (versus native) name	Belgium	Baert et al. (2017)	-
A.14. Indigenous (versus native) name	Peru	Galarza & Yamada (2014)	-
A.15. Malaysian (versus Chinese) name	Malaysia	Lee & Khalid (2016)	-
A.16. Middle-Eastern (versus native) name	Sweden	Carlsson (2010), Carlsson & Eriksson (in press), Carlsson & Rooth (2007), and Carlsson & Rooth (2012)	-
		Attström (2007)	-
A.17. Mixed-race or Indigenous (versus white) skin	Mexico	Arceo-Gomez & Campos-Vazques (2014)	-
A.18. Mongolian, Tibetan, or Uighur (versus native) name	China	Maurer-Fazio (2012)	-
A.19. Moroccan (versus native) name	France	Pierné (2013)	-
		Berson (2012)	-
		Duguet et al. (2010)	-
A.20. Pakistani (versus native) name	Norway	Midtbøen (2013) and Midtbøen (2016)	-
A.21. Turkish (versus native) name	Belgium	Baert et al. (2015)	-
		Baert & Vujić (2016)	-
	Germany	Kaas & Manger (2012)	-
A.22. Ukraine or Vietnamese (versus native) name	Poland	Wysienska-Di Carlo & Karpinski (2014)	-

### **B. Discrimination ground: Gender and motherhood**

B.1. Being a mother (versus a childless woman)	US	Correll et al. (2007)	-
B.2. Being pregnant (versus revealing no pregnancy)	Belgium	Capéau et al. (2012)	-
B.3. Female (versus male) gender	Australia	Booth & Leigh (2010)	+
		Belgium	Capéau et al. (2012)
		Baert (2015) and Baert et al. (2016a)	0
	China	Zhou et al. (2013)	+
	France	Petit (2007)	-
		Berson (2012)	+
	Spain	Albert et al. (2011)	0
	Sweden	Agerström et al. (2012)	0
		Carlsson (2011)	0
	UK	Jackson (2009)	+
Riach & Rich (2006b)		-	
B.4. Transgender sexual identity	US	Make the Road New York (2010)	-

<b>C. Discrimination ground: Religion</b>			
C.1. Muslim (versus majority religion)	France	Adida et al. (2010)	-
		Pierné (2013)	-
	India	Banerjee et al. (2009)	0
C.2. Pentecostal, Evangelical, or Jehovah's Witness (versus majority religion)	Greece	Drydakis (2010b)	-
C.3. Religious group membership	US	Wright et al. (2013)	-
C.4. Wearing headscarves	Germany	Weichselbaumer (2016)	-
<b>D. Discrimination ground: Disability</b>			
D.1. Blindness, deafness, or autism	Belgium	Baert (2016)	-
D.2. Former depression	Belgium	Baert et al. (2016b)	-
D.3. Former mental illness (versus physical injury)	US	Hipes et al. (2016)	-
D.4. HIV	Greece	Drydakis (2010a)	-
D.5. Obesity	Sweden	Agerström & Rooth (2011) and Rooth (2009)	-
D.6. Spinal cord injury or Asperger's Syndrome	US	Ameri et al. (2015)	-
D.7. Unspecified physical disability	Belgium	Capéau et al. (2012)	-
D.8. Wheelchair user	UK	Stone & Wright (2013)	-
<b>E. Discrimination ground: Age</b>			
E.1. Age 21 or age 27 (versus age 39 or age 47)	UK	Riach & Rich (2010)	-
E.2. Age 24 or age 25 (versus age 50 or age 51)	UK	Tinsley (2012)	-
E.3. Age 24 or age 28 (versus age 38)	Spain	Albert et al. (2011)	-
E.4. Age 27 (versus age 57)	France	Riach & Rich (2006a)	-
	Spain	Riach & Rich (2007)	-
E.5. Age 29, age 30, or age 31 (versus age 64, age 65, or age 66)	US	Neumark et al. (2015) and Neumark et al. (2016)	-
E.6. Age 35 or age 45 (versus age 50, age 55, or age 62)	US	Lahey (2008)	-
E.7. Age 35, age 47, or age 53 (versus age 23, age 35, or age 47)	Belgium	Capéau et al. (2012)	-
E.8. Age 46 (versus age 31)	Sweden	Ahmed et al. (2012)	-
E.9. Age 50 or age 44 (versus age 44 or age 38)	Belgium	Baert et al. (2016c)	-

E.10. Age 50 or older (versus younger)	US	Farber et al. (2016)	-
<b>F. Discrimination ground: Military service or affiliation</b>			
F.1. Military work experience	Belgium	Baert & Balcaen (2013)	0
F.2. Military service	US	Kleykamp (2009)	+
<b>G. Discrimination ground: Wealth</b>			
G.1. Residence in neighbourhood with poor (versus bland) reputation	UK	Tunstall et al. (2014)	0
G.2. Non-upper-caste (versus upper-caste)	India	Banerjee et al. (2009)	0
		Siddique (2011)	-
<b>H. Discrimination ground: Genetic information</b>			
No related correspondence experiments found.			
<b>I. Discrimination ground: Citizenship status</b>			
No related correspondence experiments found.			
<b>J. Discrimination ground: Marital status</b>			
J.1. Married (versus unmarried)	Mexico	Arceo-Gomez & Campos-Vazques (2014)	0
<b>K. Discrimination ground: Sexual orientation</b>			
K.1. LGBT organisation member	Cyprus	Drydakis (2014)	-
	Germany	Weichselbaumer (2015)	-
	Greece	Drydakis (2009)	-
		Drydakis (2011)	-
		Drydakis (2012b)	-
	Italy	Patacchini et al. (2015)	0
	Sweden	Ahmed et al. (2013)	-
		Bailey et al. (2013)	0
	UK	Drydakis (2015)	-
US	Tilcsik (2011)	-	
	Mishel (2016)	-	
K.2. Same-sex marriage partner	Belgium	Baert (2014)	0
<b>L. Discrimination ground: Political orientation</b>			
L.1. Orientation of mentioned youth political organisation	Belgium	Baert et al. (2014)	0
<b>M. Discrimination ground: Union affiliation</b>			
M.1. Youth union membership	Belgium	Baert & Omev (2015)	-
<b>N. Discrimination ground: Physical appearance</b>			
N.1. Lower attractiveness of resume picture	Argentina	Lopez Bóo et al. (2013)	-
	Belgium	Baert (in press)	-
	China	Maurer-Fazio & Lei (2015)	-
	Israel	Ruffle & Shtudiner (2015)	-

	Italy	Patacchini et al. (2015)	0
N.2. Facial disfigurement (in resume picture)	UK	Stone & Wright (2013)	-

+ (0) ((-)) indicates an overall significantly positive (neutral) ((negative)) effect of the treatment in column (1) on call-back outcomes. Used abbreviations: LGBT: Lesbian, Gay, Bisexual, and Transgender; UK: United Kingdom; US: United States. This register is kept updated at [the author's homepage](#).

With respect to evidence on gender discrimination, i.e. the experiments comparing call-back for male and female candidates, the evidence is very mixed. This is related to the particular occupations tested. Indeed, many authors mentioned that gender discrimination was heterogeneous by occupational characteristics (Baert et al., 2015; Petit, 2007; Carlsson, 2011). On the other hand, a significant penalty for being pregnant or being a mother was found in a study from Belgium and one from the United States, respectively (Capéau et al., 2012; Correll et al., 2007). Disclosing one's transgender identity was found to be detrimental to labour market success in the United States (Make the Road New York, 2010).

With respect to discrimination based on religion, a majority of the studies focussed on the signal of being a Muslim (directly mentioned or indicated by means of a resume picture in which headscarves were worn), compared with being a Christian (in countries where Christianity was the majority religion). Affiliation with Islam always yielded lower call-back rates (Adida et al., 2010; Banerjee et al., 2009; Pierné, 2013; Weichselbaumer, 2016). Somewhat surprisingly, no correspondence experiments have been conducted yet with respect to other leading religions (e.g., Hinduism, Buddhism, and Judaism) as well as to various folk religions.

Remarkably, all experiments on discrimination against the disabled have focussed on different dimensions of disability. Thus, we are in favour of replication studies for this dimension of discrimination. Nevertheless, each form of disability revealed in the hiring process seems to result in adverse hiring outcomes. The same is true with respect to age discrimination: across all studies listed in Table 1, older age is always punished.

A minority sexual orientation, revealed by means of mentioning membership in a rainbow organisation or the name of one's (same-sex) marital partner in the resume, has a non-positive effect on employment opportunities. Including an attractive facial picture (compared to a less attractive one) with one's resume has a beneficial effect. Finally, Table 1 lists little evidence

for non-negative effects of military service and higher wealth (Baert & Balcaen, 2013; Kleykamp, 2009), a negative effect of trade union membership (Baert & Omeij, 2015), and zero effects for marital status (Arceo-Gomez & Campos-Vazques, 2014) and political affiliation (Baert et al., 2014).

### **3.2 Country of Analysis**

Column (2) of Table 1 shows that the summarised literature on labour market discrimination is unbalanced with respect to the country of analysis. Grouped at the continental level, 59 of the 90 correspondence experiments were conducted in Europe, compared to 20 in North America, only 7 in the largest continent of Asia, 2 in South America, 2 in Australia, and none in Africa.

At the country level, most experiments (19) were conducted in the United States. The European countries of Belgium (13 experiments), France (8 experiments), Greece (6 experiments), Sweden (9 experiments), and the UK (8 experiments) are clearly overrepresented. On the other hand, these European countries are, together with the United States, the only ones in which within-country comparisons can be made of the discrimination measured for different grounds. In 6 of the 10 largest countries by population (Indonesia, Brazil, Pakistan, Nigeria, Bangladesh, and Russia), no correspondence experiments have been conducted yet.

## **4 Conclusion**

This chapter provided the reader with a catalogue of all correspondence experiments on hiring discrimination conducted after Bertrand and Mullainathan (2004) that could be found through a systematic search. It shows that these experiments have focussed on a few specific grounds for discrimination (race, gender, religion, disability, age, sexual orientation, and physical appearance). An overwhelming majority of these studies reported unfavourable treatment of the group hypothesised to be discriminated against. On the other hand, other topical forms of potential hiring discrimination (e.g., based on genetic information, citizenship status, or political orientation) have hardly been assessed. Moreover, in 6 of the 10 largest countries by population, no correspondence experiments have been conducted yet.

The register presented in Table 1—enriched with hyperlinks to the electronic versions of the included studies—is kept updated at [the author's homepage](#).

## References

Adida CL, Laitin DD, Valfort MA (2010) Identifying barriers to Muslim integration in France. *Proceedings of the National Academy of Sciences of the United States of America* 107:22384–22390

Agan A, Starr SB (2016) Ban the Box, Criminal Records, and Statistical Discrimination: A Field Experiment. University of Michigan Law School, Law and Economics Research Paper Series 16–012

Agerström J, Björklund F, Carlsson R, Rooth DO (2012) Warm and Competent Hassan = Cold and Incompetent Eric: A Harsh Equation of Real-Life Hiring Discrimination. *Basic and Applied Social Psychology* 34:359–366

Agerström J, Rooth DO (2011) The Role of Automatic Obesity Stereotypes in Real Hiring Discrimination. *Journal of Applied Psychology* 96:790–805

Ahmed AM, Andersson L, Hammarstedt M (2012) Does age matter for employability? A field experiment on ageism in the Swedish labour market. *Applied Economics Letters* 19:403–406

Ahmed AM, Andersson L, Hammarstedt M (2013) Are Gay Men and Lesbians Discriminated against in the Hiring Process? *Southern Economic Journal* 79:565–858

Albert A, Escot L, Fernández-Cornejo JA (2011) A field experiment to study sex and age discrimination in the Madrid labour market. *International Journal of Human Resource Management* 22:351–375

Altonji JG, Blank RM (1999) Race and gender in the labor market. *Handbook of Labor Economics* 3:3143–3259



Ameri M, Schur L, Meera A (2015) The Disability Employment Puzzle: A Field Experiment on Employer Hiring Behavior. NBER Working Paper Series 21560

Andriessen I, Nievers E, Dagevos J, Faulk L (2012) Ethnic Discrimination in the Dutch Labor Market: Its Relationship with Job Characteristics and Multiple Group Membership. *Work and Occupations* 39:237–239

Arceo-Gomez EO, Campos-Vazquez RM (2014) Race and Marriage in the Labor Market: A Discrimination Correspondence Study in a Developing Country. *American Economic Review* 104:376–380

Attström K (2007) Discrimination against native Swedes of immigrant origin in access to employment. International Labour Office, Geneva

Baert S (2014) Career Lesbians. Getting Hired for Not Having Kids? *Industrial Relations Journal* 45:543–561

Baert S (2015) Field Experimental Evidence on Gender Discrimination in Hiring: Biased as Heckman and Siegelman Predicted? *Economics: The Open-Access, Open-Assessment E-Journal* 9:25

Baert S (2016) Wage Subsidies and Hiring Chances for the Disabled: Some Causal Evidence. *European Journal of Health Economics* 17:71–86

Baert S (in press) Facebook profile picture appearance affects recruiters' first hiring decisions. *New Media & Society*

Baert S, Albanese A, du Gardein S, Ovaere J, Stappers J (2017) Does Work Experience Mitigate Discrimination? *Economics Letters* 155:35–38

Baert S, Balcaen P (2013) The Impact of Military Work Experience on Later Hiring Chances in the Civilian Labour Market. Evidence from a Field Experiment. *Economics: The Open-Access, Open-Assessment E-Journal* 7:37

Baert S, Cockx B, Gheyle N, Vandamme C (2015) Is There Less Discrimination in Occupations Where Recruitment Is Difficult? *ILR Review* 68:467–500

Baert S, De Pauw AS, Deschacht N (2016a) Do Employer Preferences Contribute to Sticky Floors? *ILR Review* 69:714–736

Baert S, De Visschere S, Schoors K, Vandenberghe D, Omeij E (2016b) First Depressed, Then Discriminated Against? *Social Science & Medicine* 170:247–254

Baert S, Jong A Pin R, De Freyne L, Parmentier S (2014) Political Ideology and Labour Market Discrimination. Conference presentation at the Spring Meeting of Young Economists 2014

Baert S, Norga J, Thuy Y, Van Hecke M (2016c) Getting Grey Hairs in the Labour Market. A Realistic Experiment on Age Discrimination. *Journal of Economic Psychology* 57:86–101

Baert S, Omeij E (2015) Hiring Discrimination against Pro-Union Applicants: The Role of Union Density and Firm Size. *Economist* 163:263–280

Baert S, Rotsaert O, Verhaest D, Omeij E (2016d) Student Employment and Later Labour Market Success: No Evidence for Higher Employment Chances. *Kyklos* 69:401–425

Baert S, Verhofstadt E (2015) Labour market discrimination against former juvenile delinquents: evidence from a field experiment. *Applied Economics* 47:1061–1072

Baert S, Vujić S (2016) Immigrant Volunteering: A Way Out of Labour Market Discrimination? *Economics Letters* 146:95–98

Bailey J, Wallace M, Wright B (2013) Are Gay Men and Lesbians Discriminated against When Applying for Jobs? A Four-city, Internet-based Field Experiment. *Journal of Homosexuality* 60:873–894

Banerjee A, Bertrand M, Datta S, Mullainathan S (2009) Labor market discrimination in Delhi: Evidence from a field experiment. *Journal of Comparative Economics* 37:14–27

Bartoš V, Bauer M, Chytilová J, Matějka F (2014) Attention Discrimination: Theory and Field Experiments with Monitoring Information Acquisition. *IZA Discussion Paper Series* 8058

Berson B (2012) Does Competition Induce Hiring Equity? Documents de travail du Centre d'Economie de la Sorbonne 12019

Bertrand M, Duflo E (2016) Review on field experiments on discrimination. In: Banerjee A, Duflo E (eds) Handbook of Field Experiments. Abdul Latif Jameel Poverty Action Lab, Cambridge

Bertrand M, Mullainathan S (2004) Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination. *American Economic Review* 94:991–1013

Blinder A (1973) Wage Discrimination: Reduced Form and Structural Estimates. *Journal of Human Resources* 8:436–455

Blommaert L, Coenders M, van Tubergen F (2014) Discrimination of Arabic Named Applicants in the Netherlands: An Internet-Based Field Experiment Examining Different Phases in Online Recruitment Procedures. *Social Forces* 92:957–982

Booth AL, Leigh A (2010) Do employers discriminate by gender? A field experiment in female-dominated occupations. *Economics Letters* 107:236–238

Booth AL, Leigh A, Varganova E (2012) Does ethnic discrimination vary across minority groups? Evidence from a field experiment. *Oxford Bulletin of Economics and Statistics* 74:547–573

Bursell M (2014) The Multiple Burdens of Foreign-Named Men—Evidence from a Field Experiment on Gendered Ethnic Hiring Discrimination in Sweden. *European Sociological Review* 30:399–409

Capéau B, Eeman L, Groenez S, Lamberts M (2012) Two Concepts of Discrimination: Inequality of Opportunity versus Unequal Treatment of Equals. *Ecore Discussion Paper Series* 2012–58

Carlsson M (2010) Experimental Evidence of Discrimination in the Hiring of First- and Second-generation Immigrants. *Labour* 24:263–278

Carlsson M (2011) Does hiring discrimination cause gender segregation in the Swedish labor market? *Feminist Economics* 17:71–102

Carlsson M, Eriksson S (in press) Do attitudes expressed in surveys predict ethnic discrimination? *Ethnic and Racial Studies*

Carlsson M, Rooth DO (2007) Evidence of ethnic discrimination in the Swedish labor market using experimental data. *Labour Economics* 14:716–729

Carlsson M, Rooth DO (2012) Revealing taste-based discrimination in hiring: a correspondence testing experiment with geographic variation. *Applied Economics Letters* 19:1861–1864

Cediey E, Foroni F (2008) Discrimination in access to employment on grounds of foreign origin in France. International Labour Office, Geneva

Correll SJ, Benard B, Paik, I (2007) Getting a Job: Is There a Motherhood Penalty? *American Journal of Sociology* 112:1297–1338

Darolia R, Koedel C, Martorell P, Wilson K, Perez-Arce F (2016) Race and gender effects on employer interest in job applicants: new evidence from a resume field experiment. *Applied Economics Letters* 23:853–856

Decker SH, Ortiz N, Cassia S, Hedberg E (2015) Criminal stigma, race, and ethnicity: The consequences of imprisonment for employment. *Journal of Criminal Justice* 43:108–121

Derous E, Ryan AM, Nguyen HH (2012) Multiple categorization in resume screening: examining effects on hiring discrimination against Arab applicants in field and lab settings. *Journal of Organizational Behavior* 33:544–570

Drydakis N (2009) Sexual orientation discrimination in the labour market. *Labour Economics*, 16:364–372

Drydakis N (2010a) Labour Discrimination as a Symptom of HIV: Experimental Evaluation: the Greek Case. *Journal of Industrial Relations* 52:201–217

Drydakis N (2010b) Religious Affiliation and Labour Bias. *Journal for the Scientific Study of Religion* 49:472–488

Drydakis N (2011) Women's Sexual Orientation and Labor Market Outcomes in Greece. *Feminist Economics* 11:89–117

Drydakis N (2012a) Estimating Ethnic Discrimination in the Labour Market Using Experimental Data. *Southeast European and Black Sea Studies* 12:335–355

Drydakis N (2012b) Sexual Orientation and Labour Relations: New Evidence from Athens, Greece. *Applied Economics* 44:2653–2665

Drydakis N (2014) Sexual orientation discrimination in the Cypriot labour market. Distastes or uncertainty? *International Journal of Manpower* 35:720–744

Drydakis N (2015) Measuring Sexual Orientation Discrimination in the UK's Labour Market; A Field Experiment. *Human Relations* 68:1769–1796

Drydakis N, Vlassis M (2010) Ethnic discrimination in the Greek labour market: occupational access, insurance coverage and wage offers. *Manchester School* 78:201–218

Duguet E, Leandri N, L'Horty Y, Petit P (2010) Are Young French Jobseekers of Ethnic Immigrant Origin Discriminated against? A Controlled Experiment in the Paris Area. *Annals of Economics and Statistics / Annales d'Économie et de Statistique* 99/100:187–215

Edo A, Jacquemet, N, Yannelis C (2013) Language Skills and Homophilous Hiring Discrimination: Evidence from Gender- and Racially-Differentiated Applications. *CES Working Paper Series* 13–58

Eriksson S, Rooth DO (2014) Do employers use unemployment as a sorting criterion when hiring? Evidence from a field experiment. *American Economic Review* 104:1014–1039

Farber HS, Silverman D, von Wachter T (2016) Factors determining callbacks to job applications by the unemployed: An audit study. *American Economic Review* 106:314–318

Gaddis SM (2015) Discrimination in the Credential Society: An Audit Study of Race and College Selectivity in the Labor Market. *Social Forces* 93:1451–1479

Galarza FB, Yamada G (2014) Labor Market Discrimination in Lima, Peru: Evidence from a Field Experiment. *World Development* 58:83–94

Hipes C, Lucas J, Phelan JC, White RC (2016) The stigma of mental illness in the labor market. *Social Science Research* 56:16–25

Jackson M (2009) Disadvantaged through discrimination? The role of employers in social stratification. *British Journal of Sociology* 60:669–692

Jacquemet N, Yannelis C (2012) Indiscriminate discrimination: a correspondence test for ethnic homophily in the Chicago labor market. *Labour Economics* 19:824–832

Kaas L, Manger C (2012) Ethnic discrimination in Germany's labour market: a field experiment. *German Economic Review* 13:1–20

Kleykamp MA (2009) Great Place to Start? The Effect of Prior Military Service on Hiring. *Armed Forces & Society* 35:266–285

Kroft K, Lange F, Notowidigdo MJ (2013) Duration dependence and labor market conditions: Evidence from a field experiment. *Quarterly Journal of Economics* 128:1123–1167

Lahey JN (2008) Age, women, and hiring: An experimental study. *Journal of Human Resources* 43:30–56

Lee HA, Khalid MA (2016) Discrimination of high degrees: race and graduate hiring in Malaysia. *Journal of the Asia Pacific Economy* 21:53–76

Lopez Bóo F, Rossi M, Urzúa S (2013) The labor market return to an attractive face: Evidence from a field experiment. *Economics Letters* 118:170–172

Make the Road New York (2010) Transgender Need Not Apply: Gender Identity Job Discrimination in New York City's Retail Sector. Make the Road New York, New York

Maurer-Fazio M (2012) Ethnic Discrimination in China's Internet Job Board Labor Market. *IZA Journal of Migration* 1:1–24

Maurer-Fazio M, Lei L (2015) As rare as a panda. How facial attractiveness, gender, and occupation affect interview callbacks at Chinese firms. *International Journal of Manpower* 36:68–85

McGinnity F, Lunn PD (2011) Measuring discrimination facing ethnic minority job applicants: an Irish experiment. *Work, Employment and Society* 25:693–708

Midtbøen AH (2013) The Invisible Second Generation? Statistical Discrimination and Immigrant Stereotypes in Employment Processes in Norway. *Journal of Ethnic and Migration Studies* 40:1657–1675

Midtbøen AH (2016) Discrimination of the Second Generation: Evidence from a Field Experiment in Norway. *Journal of International Migration and Integration* 17:253–272

Mishel E (2016) Discrimination Against Queer Women in the U.S. Workforce: A Résumé Audit Study. *Socius* 2:2378023115621316

Neumark D (In press). Experimental research on labor market discrimination. *Journal of Economic Literature*

Neumark D, Burn I, Button P (2015) Is it harder for older workers to find jobs? New and improved evidence from a field experiment. NBER Working Paper Series 21669

Neumark D, Burn I, Button P (2016) Experimental age discrimination evidence and the Heckman critique. *American Economic Review* 106:303–308

Nunley JM, Pugh A, Romero N, Seals RA (2015) Racial Discrimination in the Labor Market for Recent College Graduates: Evidence from a Field Experiment. *B.E. Journal of Economic Analysis & Policy* 15:1093–1125

Oaxaca R (1973) Male-Female Wage Differentials in Urban Labor Markets, *International Economic Review* 14:693–709

OECD (2008a) *Jobs for Immigrants. Labour Market Integration in France, Belgium, the Netherlands and Portugal*. OECD Publishing, Paris

OECD (2008b) *The Price of Prejudice: Labour Market Discrimination on the Grounds of Gender and Ethnicity*. OECD Publishing, Paris

OECD (2010) *Sickness, Disability and Work. Breaking the Barriers—A Synthesis of Findings across OECD Countries*. OECD Publishing, Paris

Oreopoulos P (2011) Why do skilled immigrants struggle in the labor market? A field experiment with thirteen thousand resumes. *American Economic Journal: Economic Policy* 3:148–171

Patacchini E, Ragusa G, Zenou Y (2015) Unexplored dimensions of discrimination in Europe: homosexuality and physical appearance. *Journal of Population Economics* 28:1045–1073

Petit P (2007) The effects of age and family constraints on gender hiring discrimination: A field experiment in the French financial sector. *Labour Economics* 14:371–391

Pierné G (2013) Hiring discrimination based on national origin and religious closeness: results from a field experiment in the Paris area. *IZA Journal of Labor Economics* 2:4

Riach PA, Rich J (2006a) An experimental investigation of age discrimination in the French labour market. *IZA Discussion Paper Series* 2522

Riach PA, Rich J (2006b) An experimental investigation of sexual discrimination in hiring in the English labor market. *B.E. Journal of Economic Analysis & Policy* 5:1–22

Riach PA, Rich J (2007) An experimental investigation of age discrimination in the Spanish labour market. *IZA Discussion Paper Series* 2654

Riach PA, Rich J (2010) An experimental investigation of age discrimination in the English labor market. *Annals of Economics and Statistics* 99/100:169–185



Rich J (2014) What Do Field Experiments of Discrimination in Markets Tell Us? A Meta Analysis of Studies Conducted since 2000. IZA Discussion Paper Series 8584

Rooth DO (2009) Obesity, Attractiveness, and Differential Treatment in Hiring: A Field Experiment. *Journal of Human Resources* 44:710–735

Ruffle B, Shtudiner Z (2015) Are Good-Looking People More Employable? *Management Science* 61:1760–1776

Siddique Z (2011) Caste-based discrimination: Evidence and policy. *Labour Economics* 18:S146–S159

Stone A, Wright T (2013) When your face doesn't fit: employment discrimination against people with facial disfigurements. *Journal of Applied Social Psychology* 43:515–526

Tilcsik A (2011) Pride and Prejudice: Employment Discrimination against Openly Gay Men in the United States. *American Journal of Sociology* 117:586–626

Tinsley M (2012) Too much to lose: Understanding and supporting Britain's older workers. Policy Exchange, London

Tunstall R, Green A, Lupton R, Watmough S, Bates K (2014) Does Poor Neighbourhood Reputation Create a Neighbourhood Effect on Employment? The Results of a Field Experiment in the UK. *Urban Studies* 51:763–780

Weichselbaumer D (2015) Testing for Discrimination against Lesbians of Different Marital Status: A Field Experiment. *Industrial Relations* 54:131–161

Weichselbaumer D (2016) Discrimination Against Female Migrants Wearing Headscarves. IZA Discussion Paper Series 10217

Weichselbaumer D (in press) Discrimination Against Migrant Job Applicants in Austria: An Experimental Study. *German Economic Review*

Widner D, Chicoine S (2011) It's All in the Name: Employment Discrimination Against Arab Americans. *Sociological Forum* 26:806–823

Wood M, Hales J, Purdon S, Sejersen T, Hayllar O (2009) A test for racial discrimination in recruitment practice in British cities. DWP Research Reports 607

Wright BRE, Wallace M, Bailey J, Hyde A (2013) Religious Affiliation and Hiring Discrimination in New England: A Field Experiment. *Research in Social Stratification and Mobility* 34:111–126

Wysienska-Di Carlo K, Karpinski Z (2014) Discrimination facing immigrant job applicants in Poland—results of a field experiment. Conference presentation at the XVIII ISA World Congress of Sociology

Zhou X, Zhang J, Song X (2013) Gender discrimination in hiring: Evidence from 19,130 resumes in China. <http://dx.doi.org/10.2139/ssrn.2195840>. Accessed 11 November 2016

Zschirnt E, Ruedin D (2016) Ethnic discrimination in hiring decisions: a meta-analysis of correspondence tests 1990–2015. *Journal of Ethnic and Migration Studies* 42:1115–1134