## CHEATING HHRR DEPARTMENTS: AN EXPERIMENT TO DISCOVER DISCRIMINATORY

#### **PRACTICES IN SELECTION PROCESSES**

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#### Abstract

In this paper we undertake an analysis of gender discrimination in granting job interviews as a means to approximate gender discrimination in finding employment. In order to facilitate our analysis, we undertook a field experiment in the form of a "correspondence test", in which for a period of six months, in the Madrid labour market, we responded to job offers placed online (for a series of various occupations), sending the same employers pairs of curricula, similar in every aspect but the sex of the candidates.

Using the different curricula and the rates of call-backs by the firms, we analyse the level of discrimination in gaining access to job interviews. We study if women are discriminated against in "masculine occupations" or men in traditionally female occupations and at the same time we try to capture the penalization of pregnancy. Finally, we attempted to test the existence of age discrimination that is, using different profile of ages trying to capture the difference of treatment linked to the age of candidates. Once our results have been interpreted, we evaluate policy implications from the perspective of equality between men and women in the workplace in the Spanish market.

Keywords: Correspondence Test, Glass Ceiling, Gender Discrimination, Labour Market

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### Introduction

Labour market field experiments are valuable research tool to complement the Blinder-Oaxaca regressions. Field experiments have been applied to discrimination for more than 30 years (see Riach and Rich 2002: 480). Fundamentally they consist of using pairs of similar/equal candidates in all characteristics except one (sex, race, age etc.), that apply for employment, housing or a product. After realising the field work, one quantifies the extent to which a type of candidate is accepted over another (for example, the level of white candidates over blacks for job interviews), and this data is submitted to relevant statistical/econometric analysis.

Up to now, in Spain no study of gender discrimination in the labour market has been based on field studies. The traditional means to study this phenomenon is based on either conducting surveys (normally of employers) or using macro-surveys that are based on the labour market (Economically Active Population Survey (EPA) European Union Household Panel (PHOGUE), Wage Structure Survey, Living Conditions Survey, etc.). In the latter observations are subject to econometric analysis<sup>1</sup>. All variables (available in the related macro-survey) that are considered as influencing worker productivity are accounted for and the difference between average results (in salary, promotion, etc.) between women and men, is considered to be a quantification of the level of gender discrimination that exists in the labour market. The principal limitation of using these types of studies is that one cannot possibly account for all variables that effect individuals' productivity. There is an "unobserved heterogeneity problem". For example, concerning woman there might be differences in lifestyles with respect to home tasks (women that give relatively greater priority to the home than to the workplace), which influence productivity and are not observable.

Given that these differences can also be related to some of the independent variables used in the regression models (investment in human capital, number of children, part time work etc.) some of the parameters may be biased. This problem does not occur in

<sup>&</sup>lt;sup>1</sup> A comprehensive detailed survey and discussion of studies using this wage regression technique to test for wage discrimination on the basis of race and/ or sex is contained in Altonji and Blank (1999)

the case of the aforementioned field studies given that, as commented above, it is the researcher himself or herself that designs (controls) the curricula that are sent to the firms, which are essentially the same and are rotated between men and woman as they are sent to the different firms.

Moreover, even when the estimations of the gender wage discrimination can be a fundamental contribution to the measurement of discrimination, these should be complemented by an evaluation of the other types of discrimination, mainly for two reasons. First, in the countries that have laws against discrimination, the discriminatory practices should move toward practices that are less easily detectable than wage discrimination. For instance, discriminatory practices could appear in the hiring process. Second, the reduction of the wage gap increases the labour cost of women compared to men and could therefore decrease the probability that women get jobs.

For this paper, we undertook a field experiment "correspondence test", in which for a period of 6 months within the labour market in Madrid, we responded to job offers placed online (for a series of various occupation), sending to the same employers pairs of curriculum, identical in every respect except for the sex of the candidates.

Conducting this experiment we try – in the first place – to analyse if there is a penalty for paternity/maternity suffered by woman (with respect to men) in the labour market in Spain. Concretely, we estimate the degree which companies are less interested in contracting woman than men, among the younger workers with a higher probability of having children in the future. In this sense, we try to determine which of the two theories, statistical discrimination or taste for discrimination by Becker, can greater explain discriminatory conduct based on gender observable at the moment of selecting personnel. We further contrast the extent to which women encounter greater obstacles in being promoted than men. The results obtained further allow us to analyse the degree with which women are discriminated against in accessing traditionally male-dominated occupations, and to what degree men are discriminated against in accessing traditionally female professions. Finally, we attempted to test the existence of age discrimination that is, using different profile of ages trying to capture the difference of treatment linked to the age of candidates.

This paper is structured as follows: Section II gives an overview of field experimental studies. Section III describes the design of our experiment including the main objectives and restrictions. Section IV presents the model. Section V provides some preliminary results and Sections VI discusses conclusions and extensions. The appendix shows more information about the experiment. At the present moment, we have just finished the process of tabulating the answers to the job offers, there fore our results and conclusions are preliminary ones.

#### Section II. Social Experiment: Field Experiments

Perhaps the most notable social experiments in recent years have been paired-audit experiments to identify and measure discrimination. These involve the use of "matched pairs" of individuals, who are made to look as much alike as possible apart from the protected characteristics (e.g., race, sex, age ). These pairs then confront the target subjects, who are employers, landlords, mortgage loan officers, or car salesmen. This type of methodology has been applied to very different topics like: discrimination in finding employment (see, Daniel 1968; Firth 1981; Riach and Rich 1987; Bendick and Jackson 1991; Kenney and Wissoker 1994; Neumark, Bank and Van Nort 1996; Prada, Actis and Pereda 1996; Weichselbaumer 2001; Duguet and Petit 2004; Bertrand and Mullainathan 2004) It has been also used to measure discrimination to acquire a house (see, Wienk, Reid, Simonson y Eggers 1979; Yinger 1986; Galster y Constantine 1991; Yinger 1998) or to estimate discrimination in markets, like car markets (see Ayres 1991; Ayres y Siegelman 1995).

There are two types of field experiments in this area:

• The first one is the "personal interview", in this kind of experiments two potential employees will access to an interview with the potential employer. Researches in Britain often use the term "situation tests" to describe personal approaches whereas in the United States they are usually called "audit tests". In

these cases, two testers are matched; the qualifications and style of the "testers" try to be as similar as possible trying to get that both will be equal in all the characteristics related with the employment except bar the sex, the race ... of the applicant. This type of experiments has normally two phases in which it is viable to measure the discrimination: in the first one, the two applicants will answer job offers (by hand or by phone) and if the calling for an interview is lower for a group than the others, it can be established the possibility of discrimination against this group (blacks vs. whites, women vs. men). And a second phase will be possible if both applicants are calling for an interview. In this point, it can be measured if one group tend to be selected over other groups the possibility of discrimination against this group, even in some studies it can analysed the differences of the work conditions offered to the applicants (see Bovenberek, 1992, Prada Actis and Pereda, 1996, Neumark, 1996).

Heckman and Siegelman (1993) question the effectiveness of the procedures for selecting, training and matching pairs of testers so as to ensure they are identical in all relevant employment characteristics except race: moreover the capacity to demonstrate tester equivalence objectively. Heckman and Siegelman said "This inability to defend, or even fully enunciate, the criteria uses to match audit pair members constitutes the Achilles heel of audit pair methodology". Despite careful training of the participants, even if they are actors, it is impossible to ensure that all aspects of the applicants' performance are identical during their interaction with those performing the interview. In particular, it is possible, that consciously or unconsciously, the minorities bias the result in a different way than the real one. They can performance worse in order to prove the existence of discrimination, but they can performance better than media in order to demonstrate that they are not worse than other groups (men or blacks).

• The second one is called correspondence tests. This technique is focus in the first phase of the personal interview. That means to respond job offers placed (press and/or online) sending the same employers pairs of curricula, similar in every aspect bar the aspect (race, sex, age) subject to analysis in order to measure discrimination at the fist stage of the labour market, the job access. There are various advantages to using correspondence tests over "personal interviews": First, one avoids the usually criticisms raised against "personal

interviews" (see Heckman 1998), whereby, regardless of prior instruction, given the fact that actors feel committed to combating discrimination, they may be conscientiously or unconscientiously bias in their responses to the interviewer, which can lead to sizable differences between the two groups. This does not occur with a correspondence test because one uniquely works with the two curricula designed by the investigator, which are rotated among the applications. So the researcher is able to exercise precise control over the content of applications. Secondly, a correspondence test is far cheaper to conduct and, moreover, allows for a greater number of observations to be made (the majority of these studies send more than 500 pairs of curricula). For recent examples of these types of studies, see Weichselbaumer 2000; Duguet and Petit 2004; and Bertrand and Mullainathan 2004.

The test of correspondence has been mainly used to analyse discrimination against race, however some of these studies have taken into account the variable sex. Nevertheless there are some papers in which this method has been directly used to measure sex discrimination.

In this sense, Firth (1981) sent 1978 pairs of curricula (men and women) answering job offers related with the accounting sector, getting lower response to women in the cases in which the job cab be considered a qualified job. Having children or been colour applicant affect the rate of success having lower achievement the colour women with children.

Weichselbaumer (2000) focus his field experiment in Viena sending 477 applications to two considered "men occupations" (computation and system technician) and to two considered "female occupations" (secretarial and accounting). The results showed the evidence of discrimination against women in male occupations and discrimination against males in female occupations. Therefore, these outcomes seem to confirm the thesis of a segregated labour market by gender.

In 2004, Duguet and Petit made their experiment in Paris sending 942 pairs of applications (471 for each sex) to the financial sector. The testing has shown that the probability of being called for an interview is much lower for 25 years old women without children. This result could be considered an evidence of the

existence of statistical discrimination due to the fact that firms arranged fewer interviews with women with a higher probability of being mothers.

While empirical studies have served to provide an empirical foundation that suggests discrimination is prevalent in the marketplace, they have been less helpful in distinguishing the nature of discrimination. As Riach and Rich (2002) note, findings from field studies *appear* to be more consistent with the majority white populations having a general "distaste" for minorities in the sense of Becker (1975) or a general "social custom" of discrimination in line with Akerlof (1980); but statistical discrimination (Arrow 1972; Phelps 1972), or marketers using observable characteristics to make statistical inference about productivity or reservation values of market agents, for example, cannot be ruled out, ex ante or ex post. This fact is highlighted in Heckman and Siegelman (1993, who note that labour market "audit studies are crucially dependent on an unstated hypothesis: that the distributions of unobserved (by the testers) productivity characteristics of majority and minority workers are identical."

However, we are aware that corresponding tests have some of the disadvantages which precisely tried to solve this method. Following Heckman (1998), it is possible that a given productive characteristics does not send the same signal depending on it belongs to a woman or a man. One can extend this argument to the characteristics of the correspondence test itself. Same curriculum vitae, for instance, can send a different signal depending on the gender of the applicant. In this situation, controlling for the content of the applications does not necessarily leads to a proper measure of discrimination. A way to account for this critic is to use regression methods that control for both the productive and non-productive characteristics of the test, instead of comparing the percentages of success directly.

### Section III. The design of the experiment

In this kind of field experiments, concretely, the correspondence test, in which our main objective is to quantify the rates of calls for an interview, the potential employer will only have the information of the applicants' qualifications trough the curricula vitae that we will send to them. For this reason, it is determinant that the sex and the age will be the only different feature in each pair of the CV mail to the firms. The curricula were designed regarding the common style of the real ones. All the curricula reflect a professional experience according with their ages and education. The professional careers are designed in a way where there is no likelihood of unemployment. The names and last names of the applicants will be used are usual names for native Spanish speakers.

## III.1. Five types of applications

Taking into account the above premises, the design of the experiment has been the following: we have constructed 5 pairs (for women and men) of curricula that mean 5 different profiles of candidates distinguishing by:

- age (24, 28 and 38 years old)
- marital status (single, married-children), for the 28 and 38 years old candidates.

And of course we have take into account the sex of each candidate. So in response of every job offers of each enterprise we have sent ten curricula differentiating by sex, age, and marital status (see graph 1).



## Graph 1 Five profiles (10 curricula) for each job offer

These different profiles intend to send different signals to the employers as are used in the previous literature. There are three different profiles of ages trying to capture the difference of treatment linked to the age of the candidate and each of these profiles can be men or women and these ones can be single or not (except for the ones of 23 years old, that will be for sure single) in order to get the difference of treatment due to family constraints.

First, we tried to prove the existence of age discrimination in accessing for a job interview. Age discrimination is comparatively understudied by economists. Although, it is well known older workers take longer time to find employment than younger people, it is not known whether this delay is due to discrimination, higher reservation wages, or clustering in dying industries. The field experiments have the advantage of directly observing discrimination as it happens.

There are three different types of ages, 23, 28 and 38 years old and we have used the third profile age, candidates of 38 years old, considering that they still have a long job career taking into account that the age of retirement in Spain is around 65 years old. We wanted to avoid the failing of other experiment in which there is a huge gap of the two profiles (25 year old vs. 57 years old, Bendick, 1999) and we also choose the age of 38 years old in order to avoid that candidates were excluded since the first moment because the offer of job exclude people over certain age. First, the difference of ages could help to capture if employers are reluctant to contract women or even men of certain age (38 years old) assuming that these candidates are too old and less productive than the younger ones and therefore we will have confirmation of age discrimination.

Second, the difference of ages mixing with being married, are giving information to the employer about family constraints. The profile married 28 years old married with one child is sending the signal that she/he will have family constraints due to the existence of one child and the probability of having more in the future. The profile married 38 years old married is sending the same signal than the ones of married 28 years old but the probability of being pregnant in the future is much lower. We are trying to catch if employers apply a penalty for paternity that is, if employers refuse in higher proportion candidates with children, we will have an evidence of this penalty. Moreover, if

employers contact fewer women with children than men with children, we will have a proof that the burden of the penalty is suffered mainly by women. Moreover, this will be also confirmation that the kind of discrimination suffered by women can be statistical discrimination.

In this sense, we tried to prove if the existence of discrimination is the kind of taste or animus-based discrimination (Becker, 1971) or statistical discrimination (Phelps, 1972). If there is disinclination to hire women is based in their biological-determined role to bear children and / or in the socially determined role to care for sick children, we should observe a higher discrimination against young women married with higher possibilities of having children and therefore this finding will be the proof of having statistical discrimination against women and the degree of this discrimination is equal for all selected women, we will have some proof of taste based discrimination.

# III.2. Three types of occupations

The 5<sup>th</sup> profiles (10 curricula) have been created taking into account:

- Three different occupations:
  - 1. Secretarial/clerical which is a female segregated occupation; According with the data of Population Census, 2001 and CNO- 93 3 digits, administrative and clerical jobs have a percentage of 68,27% of women, and probably if we include only in this category secretarial jobs, the proportion of women can be even higher.
  - 2. Accounting and financial tasks, is an occupation without segregation. Occupations related with accounting and financial tasks are considered an integrated profession that means neither of any sex is under represented in these occupations, that is, there is not segregation by sex.
  - 3. Sales representative, a male segregated occupation. According with the data of Population Census, 2001 and CNO-93, 3 digits, sale representative is considered a segregated occupation dominated by men, being 81, 4% men of all workers in this profession.

- And two levels of qualifications (low and high) for each occupation. The motivation of using two profiles of education is to try to capture if women are called for occupations with less prestige and less possibility for promotion trying to verify the hypothesis of crowed markets by Bergmann (1980). She argued that employment discrimination caused women to be "crowded into a comparatively small number of occupations," which in turn resulted in women workers' earning lower wages than men workers and less possibilities of promotion to better jobs. If women will receive higher number of calls for employment with a profile of low education and less calls for jobs which requires a higher education, it can tested Bergmann thesis which implies also indirectly an evidence of glass ceiling phenomenon. Taking into account this premise, we have created two different profiles of curricula:

	PROFILES	Low profile	High Profile
OCCUPATIONS			
Secretarial		Clerical	Executive secretarial
Accounting		Bookkeeping	Accountability
Sales representative		Sales representative	Expert in marketing

### Table 1: Occupations and Profiles

### III.3. Job Advertisement Sources

We have used for our experiment Infojobs.net as a channel to send the curricula to the firms. At the beginning we decided to take the job offers from the job web sites and the newspapers but during our trial period, we realised that most of the newspapers offers were for representative sales but there weren't for the other selected occupations. Among the all the job web companies we decided to use InfoJobs.net for the following reasons: InfoJobs.net is the leader private job site in Spain and Europe, only public institutions like the Employment Agency in Germany and France have a higher registered traffic on the web. InfoJobs.net has actually more than 1,800,000 of candidates, more than 80,000 job offers and its web page has been visited for mote than

61 millions of people. According with Nielsen Netrating, InfoJobs.net has more than 70% of the connection share from home to the employment sector. Each working day, more than 2,200 people register their CSV's on the InfoJob site and this web has more than 24,000 active daily job offers.

## III.4. Logistic of the experiment

In respect to the logistic, we have created a data base with false people (taking the names and the last names from the telephone list and mixed by choice<sup>2</sup>). Then, we have assigned to each name one email address in order to apply to the job offers at internet. Also, we have assigned 10 mobile phones (corresponding to 10 CV) to 10 people<sup>3</sup>. Each investigator is responsible of the reception of the phone calls of their phones and has to fill all the data of each call like the name of the company, the applicant, and so on. The schedule designed to receive the phone calls was form 9 to 14 hours, and from this moment to the rest of the day, the phones were closed but the answering machine were activated.

Each time an investigator makes a reception of a phone call for an interview, he/she has to register it on the data base. We also collected information on each one of the registered companies in SABI (Sistema de Análisis de Balances Ibéricos) and then we include all this information in our data in order to be able to determine if there were any notable differences based on the characteristics of the firms. The SABI data base contains very detailed information about the companies. Among that, we are collecting several variables like number of workers, corporate governance, assets of the companies etc.

 $<sup>^2</sup>$  For the construction of the names of the applicants, we choose the names and the last names from the telephone directory excluding the strange ones and after both (names and last names) were mixed by random

 $<sup>^{3}</sup>$  The total of the curricula are distributed between the investigators, and each investigator has been also responsible for the creation of the fictitious curricula according with the rules established a priori. All curricula are revised and discussed by the group in order to avoid differences between them which can introduce bias on them.

#### Section IV. Results of the experiment

The results obtained on the labour market do not point to significant differences between the profile of men and women that were contacted; in fact a higher number of women were contacted for selected occupations with the same profile. What we do notice is that there is a clear preference among companies towards those who were around the "middle" age group (28 years old) in our study. Theses results could be an indicator of sex segregation and age discrimination in the Spanish labour market.

As we mention before, a total of 10.263 CVs have been sent to companies that were in processes of staff selection. The data of the table 2 shows the number of responses differentiated by occupations<sup>4</sup>. The total number of answers has been of 1.062. In terms of firms, 472 of them has contacted with at least one candidate. From this total, 276 firms were perfectly identify whereas 196 couldn't be identify due to the fact that the companies contacted by phone with the candidates and in some cases they left a message in the mail phone without identification.

Our analysis is based on the "rates of call-back" of the firms that means the percentage of curricula contacted over the total sent curricula. The data of the table 3 shows an average rate of call-back of 8, 77%. In other words, from the total of sent curricula (10.622), 931 were contacted by the firms.<sup>5</sup>

<sup>&</sup>lt;sup>4</sup> When two testers apply for a job, there are four possible outcomes: both received a positive answer for an interview, only the male offered a interview; only females offered an interview, neither offered an interview. We consider "neither consider an interview" as a non-observation<sup>4</sup> and not as equal or symmetrical treatment because, there are many reasons why job applicants may be rejected before an employer has to confront with sex .Initial screening can may be based on the timing of application, current employment status ...

<sup>&</sup>lt;sup>5</sup> 1062 firms multiplied by 10 curricula send to each of them is equal to 10.062

Occupations	Offers			
All	1.062			
Sales representatives	226			
Expert in Marketing	216			
Bookkeepers	198			
Accountants	166			
Clericals	176			
Executive secretaries	80			

## Table 2: Number of jobs offers differentiated by occupations

### Rates of call-back by sex and occupations

When we differentiate by occupations, the rate of response between men and women, we observe, the ratio of female answer, 10, 06%, is higher than the ones of the males, 7,48%, so the gap female-male is 134,51. This gap is statistical significant according with the P-value showed in the last column of the table 3. Therefore, globally speaking, firms have shown more interest to interview women than to contact with men. However, we must point out that this global outcome derives from the occupations selected in the experiment.

For this reason, it is important to show the results differentiated by occupations for each sex (table 3). Firstly, secretarial, that is a female occupation, in both profiles clerical and executive secretary, have received more offers for women than for men being statically significant; in fact, women have got calls three more times than men with a gap femalemen of 306,67 and 315,0 respectively.

Again, in an integrated occupation as accounting, the data show that women receive more calls then men, with a gap female-male of 114,16 and 109,43 respectively. Moreover, for the lower profile, bookkeeping, the results of this difference of response are statically significant. Finally, for the male occupation, sales representative, the firms have contacted in a similar number with men and women: the rates of response are very similar and the gap female-male is 96, 35 and 100 respectively.

These results are similar to the ones found by Rich and Reich (2006.b). They obtained a clear discrimination against men for two occupations integrated in terms of gender, accountant and computer program analyst for Great Britain data. In fact, women receive four more times calls than men; therefore these results can be an evidence of sexual discrimination against men in some occupations.

	Callback rates	Callback rates	Callback rates	Gap W-M	Difference W-M (p-value)	
	for women & men	for women	for men			
Sent curricula	8,77%	10,06%	7,48%	134,51	2,58%	
	[10.620]	[5.310]	[5.310]		(0.000)	
Sales representative	16.68%	16.37%	16.99%	96.35	-0.62%	
	[2.260]	[1.130]	[1.130]	,	(0.346)	
Expert in marketing	2,31%	2,31%	2,31%	100,00	0,00%	
	[2.160]	[1.080]	[1.080]		(0.500)	
Bookkeeper	9,49%	11,21%	7,78%	144,16	3,43%	
	[1.980]	[990]	[990]		(0.005)	
Accountant	6,69%	6,99%	6,39%	109,43	0,60%	
	[1.660]	[830]	[830]		(0.312)	
Ckerical	6,93%	10,45%	3,41%	306,67	7,05%	
	[1.760]	[880]	[880]		(0.000)	
Executive secretary	10,38%	15,75%	5,00%	315,00	10,75%	
	[800]	[400]	[400]		(0.000)	

**Table 3: Rates of call-backs by occupations** 

NOTE: The number that is between brackets below the rate of call-backs is the number of sent curricula; the number between brackets of the last column is the P-value. The P is derived from Z statistic differences of proportions

Z-statistic = 
$$\frac{\left|P_{male} - P_{female}\right|}{\sqrt{\left(N_{male} + N_{female}\right) / \left(N_{male} \cdot N_{female}\right) P_{total} \cdot (1 - P_{total})}}$$

These outcomes derived of our experiment support the idea that segregation by sex is a form of labour discrimination which can generate crowded markets, attending to the fact the relevant occupations are very different in average wages and possibilities of promotion. For example, if employers are contacting more with females for the profession of bookkeeper, this can be the proof that some of the female or integrated occupations are shifting into females occupations in a context of important female

presence in the labour market. Furthermore, taking into account, the female rate of callback is higher for the lower profile occupation, bookkeeping, than for the higher, accountant; this can be a signal of this phenomenon of feminization for the lower profiles of the occupations. In most studies, we observed that women are particularly prone to encounter discrimination in higher status and hierarchically senior occupations and less discrimination in low down level occupations without possibility of promotion, confirming the thesis of dual markets. In this sense, these results concurs with the ones of Neumark *et al* (1996) in which in high-price restaurants (where earnings are higher), job applications from women had an estimated probability of receiving a job offer that was lower by about 0,4 and an estimated probability of receiving an interview that was lower by about 0,35. Both estimated differentials are statistically significant; the results were completely different for cheap restaurants.

It seems employers are more interested in calling females candidates for traditionally male occupations than the other way around; that is, firms are calling at the same rate to women and men for the occupation of sale representative (male occupation); however, firms are offering three more times an interview to women than to men for secretarial jobs (female occupation). These results are similar to the ones of Rich and Reich (2006.b); they showed that the intensity of discrimination against men in the occupation of secretarial (traditionally female occupation) is double the discrimination against women in the profession of engineer (traditionally male occupation).

It is important to keep on mind that women's higher acceptation in male occupations (sales representative/ expert in marketing) opposite to the lower acceptation of males in females profession can be related with the different signals of professional ambitions sent by the curricula of the candidates. When firms receive female curricula for being sales representative, they are sending the signals that they have a high level of professional aspirations, whereas when males are sending their curricula for secretarial jobs, this can be understood as these men have lower professional ambition and therefore these candidates can't not be very attractive for the employers. Levinson (1975) and Rich and Reich developed an alike argument in order to explain their results for the administrative profession.

### Rates of call-backs by civil status

It is central to remind that in our experiment to be married implies to have children (28 years old married men and women have one child and 38 years old men and women have two children) in order to send the signal of the family constraints of these candidates. So the potential penalization for being married is in fact a potential penalization for maternity/paternity. In the case of women we would expect Phelps-style statistical discrimination to be particularly directed at their maternal role; their job tenure under suspicion because of possible pregnancy and their reliability suspect because of child care responsibilities.

The rates of call-backs for single and married candidates and their corresponding gap are showed in table four. For the overall of curricula there is a penalty for being married = children, because the rates of call-backs for singles (men and women) is 9,06% whiles the rate for married is 8,33%, so the gap single-married is 108,66. However, this result is not statistically significant: the P-value of the difference between the percentages is 0.099. If we differentiate these results between men and women, we observe that employers penalise more married women than married men, however the P-value evidences again that the divergence is not statistically significant.

When we desegregate the outcomes by occupations, the results are almost the same but there is a clear event of penalization for male married candidates for administrative jobs, getting a gap single-married of 219,05. Also, we observe some instances of paternity/maternity penalty for occupations like expert in marketing, accountant etc, but they are not statistically significant.

		Callback rates	Callback rates Callback rates		Difference single-married		
		single	married		(p-value)		
Sent curricula	Women & men	9,06%	8,33%	108,66	0,72%		
Enviados		[6372]	[4248]		(0.099)		
	Women	10.45%	9.46%	110.45	0.99%		
		[3186]	[2124]	-, -	(0.120)		
	Men	7 66%	7 20%	106 32	0.46%		
	Wen	[3186]	[2124]	100,02	(0.268)		
		[5100]	[2124]		(0.200)		
a					0.000/		
Comerciales	Women & men	17,04%	16,15%	105,48	0,88%		
	Maman	[1356]	[904]	102.28	(0.290)		
	women	10,52% [678]	[452]	102,20	(0.435)		
	Men	17 55%	16 15%	108 68	1 40%		
	Wiell	[678]	[452]	100,00	(0.269)		
Marketing	Women & men	2.31%	2.31%	100.00	0,00%		
ő		[1296]	[864]		(0.500)		
	Women	2,47%	2,08%	118,52	0,39%		
		[648]	[432]		(0.340)		
	Men	2,16%	2,55%	84,85	-0,39%		
		[648]	[432]		(0.340)		
Auxiliares contables	Women & men	9,43%	9,60%	98,25	-0,17%		
		[1188]	[792]		(0.450)		
	Women	11,62%	10,61%	109,52	1,01%		
		[594]	[396]		(0.311)		
	Men	7,24%	8,59%	84,31	-1,35%		
0	14/1-1-1-0	[594]	[396]		(0.219)		
Contables	women & men	7,03%	6,17%	113,82	0,85%		
	14/	[996]	[664]		(0.248)		
	vvomen	7,03%	6,93%	101,45	0,10%		
		[498]	[332]		(0.478)		
	Men	7,03%	5,42%	129,63	1,61%		
A	14/	[498]	[332]	400.07	(0.177)		
Aux. adm./recepcionistas	women & men	7,77%	5,68%	136,67	2,08%		
	Women	[1056] 11 17%	[704] 0 38%	110 10	(0.046)		
	Women	[528]	[352]	113,13	(0.196)		
	Men	4.36%	1.99%	219.05	2.37%		
		[528]	[352]	,	(0.029)		
Secretarias	Women & men	10,83%	9,69%	111,83	1,15%		
		[480]	[320]	,	(0.301)		
	Women	17.50%	13.13%	133.33	4,38%		
		[240]	[160]	,	(0.120)		
	Men	4,17%	6.25%	66,67	-2,08%		
		[240]	[160]	·	(0.174)		

Table 4: Rates of call-backs differentiated by sex

NOTE: The number that is between brackets below the rate of call-backs is the number of sent curricula; the number between brackets of the last column is the P-value. The P is derived from Z statistic differences of proportions

Z-statistic = 
$$\frac{\left|P_{male} - P_{female}\right|}{\sqrt{\left(N_{male} + N_{female}\right) / \left(N_{male} \cdot N_{female}\right) P_{total} \cdot (1 - P_{total})}}$$

In sum, at a first glance it seems that firms penalise for having children and it appears that this penalty is higher for women (the gap single-married for women is higher than 100 for the 6 selected occupations, while the same gap for men is only higher for 3 of the 6 chosen occupations). But, as we just said before, the gap is not statistically significant for any of the occupations and therefore our testing hypothesis is not strongly verified by the data. Our last results contrast with the ones of Duguet and Petit

(2004) where the firms call back less younger candidates (25 y.o), who have higher probability of being pregnant, than to mature women (37 y.o) with lower probability of being pregnant.

According with our results, is seems employers don't punish candidates with children because they probably rely that today the rate of fertility is too low and she also considers that most of the parents don't interrupt their careers due to family restrictions. An alternative explanation to understand these outcomes can be related with the selected professions of the experiment in which family constraints can not be considered an impediment to develop their jobs, that is, there are occupations with a not very high level of commitment, not very demanding etc, so there is the possibility of being compatible job and family.

### Rates of call-backs by age

The difference of the ages wanted to capture the different replies of employers between young and old people. One would expect that older people to have some genuine human capital differences from the young. On the positive side, one would expect to have more experience; on the negative side, they might have less physical stamina and be less receptive to new production techniques. And it is precisely in the rates of call-back by age where it has been found significant differences.

On table 6, we show the rates of call-back for different ages, 24, 28 and 38 years old (y.o) and their corresponding age gap. For all the sending curricula, we have obtained a clear discrimination against 38 years old candidates. The rates of call-back are similar for 24 and 28 y.o candidates while there is an important divergence of callings between the rates of 28 y.o (6,12%) and the rates of 38 y.o applicants (10,85%), being this difference statistically significant. The age gap 28-38 years old is 177, 31; that is, the applicants of 28 years old have a rate of call-backs 77% higher than the ones of 38 years old. If we differentiate these results by sex, outcomes are almost the same. The results can be considered an evidence of age discrimination at the initial stage of the hiring process.

We want to stress that firms have the highest interest for the applicants of 28 years old probably because they consider that these candidates are still young and they have more experience than the younger ones. However, -even when 38 years old candidates are still young and have a great experience in theirs sectors-, companies are not willing to contact with them, demonstrating a clear discrimination against this group of this age. So the discrimination by age is fixed in a low threshold: 38 years old.

On the experiment by Bendick (1999), the oldest applicant was discriminated in 42% of the occasions but the difference of ages of the applicants was really large (25 and 57 years old), and in this study the designed curricula didn't show divergences in professional experience between the candidates (the 57 y.o applicant had been working for an important fraction of his professional life in occupations not related with the selected on the experiment). Our results are in concordance with the ones got by Reach and Rich (2006) in which the percentage of discrimination by age against the oldest candidate was of 58, 1% in a experiment in which the applicants (27 y.o and 47 y.o) was lower than in others researches and the professional experience was accordance to the age of the candidates.

If we analyse the call backs by age differentiated by the selected occupations, the results are very similar to the previous ones, but there are two cases that are interesting to point out. Firstly, the "sales representative" profession is the only one in which the are statistically significant differences of call-backs between the applicants of 24 and 28 years old, the rates of call-backs increase from 14,16% for the 24 y.o. to 21,24% for the 28 y.o candidates, whereas the ratio of calling decrease to 13, 18% for the 38 y.o applicants. These divergences are probably an evidence of the importance of the "professional experience" for being "sales representative", and for this reason, these candidates of 28 years old with 6 years of experience are the most attractive for the companies. And, secondly in profession of "accountant", the firms seems to be more interested in calling candidates of 24 year old than any other profile. In fact, the rates of call-back diminish at their threshold of ages; the percentage of calling are 9, 94%, 6, 93% and 4,82% for 24, 28 and 38 years old applicants, respectively. The offers for this occupation in our experiment used to be of a high level of quality and probably firms are interested in calling younger candidates (with a degree in economics) in order to

give them a specific formation and the possibility of developing a professional career in them.

Finally, we want to address with the kind of signals we have sent in the curricula, we can not assure the reasons of this age discrimination against this type of candidates. What we know is that employers refuse to call candidates of 38 years old but the reasons can be diverse. Probably, two reasons are going together, in one hand, they think that they are going to be less malleable than young people, and other hand, it is likely that employer think young people are willing to accept worse wage offers than groups of older ages. Indeed, it seems that the prospective employer still assign a 'lower' productivity to the 38 year old people, despite the sent signals on the CV. And also, we have to bear in mind that the kind of selected occupations in this experiment, even the considered high qualification, doesn't belong to high hierarchical jobs, so employers are probably thinking in younger candidates .

		Callback rates	Callback rates	Callback rates	Gap 24-28	Diff. 24-28	Gap 24-38	Diff. 24-38	Gap 28-38	Diff. 28-38
		24 y.o.	28 y.o.	38 y.o.		(p-value)		(p-value)		(p-value)
Sent curricula	Women & men	9,89%	10,85%	6,12%	91,11	-0,97%	161,54	3,77%	177,31	4,73%
		[2.124]	[4.248]	[4.248]		(0.118)		(0.000)		(0.000)
	Women	11,58%	12,38%	6,97%	93,54	-0,80%	166,22	4,61%	177,70	5,41%
		[1.062]	[2.124]	[2.124]		(0.257)		(0.000)		(0.000)
	Men	8,19%	9,32%	5,27%	87,88	-1,13%	155,36	2,92%	176,79	4,05%
		[1.062]	[2.124]	[2.124]		(0.146)	-	(0.001)		(0.000)
Sales representative	Women & men	14,16%	21,24%	13,38%	66,67	-7,08%	105,79	0,77%	158,68	7,85%
		[452]	[904]	[904]		(0.001)		(0.348)		(0.000)
	Women	12,39%	21,46%	13,27%	57,73	-9,07%	93,33	-0,88%	161,67	8,19%
		[226]	[452]	[452]		(0.002)		(0373)		(0.001)
	Men	15,93%	21,02%	13,50%	75,79	-5,09%	118,03	2,43%	155,74	7,52%
		[226]	[452]	[452]		(0.057)		(0.197)		(0.001)
Expert in Marketing	Women & men	3,24%	3,13%	1,04%	103,70	0,12%	311,11	2,20%	300,00	2,08%
		[432]	[864]	[864]		(0.455)		(0.002)		(0.001)
	Women	3,70%	2,78%	1,16%	133,33	0,93%	320,00	2,55%	240,00	1,62%
		[216]	[432]	[432]		(0.260)		(0.105)		(0.043)
	Men	2,78%	3,47%	0,93%	80,00	-0,69%	300,00	1,85%	375,00	2,55%
		[216]	[432]	[432]		(0.319)		(0.036)		(0.005)
Bookkeepers	Women & men	11,11%	12,12%	6,06%	91,67	-1,01%	183,33	5,05%	200,00	6,06%
		[396]	[792]	[792]		(0.305)		(0.001)		(0.000)
	Women	15,15%	13,38%	7,07%	113,21	1,77%	214,29	8,08%	189,29	6,31%
		[198]	[396]	[396]		(0.279)		(0.001)		(0.002)
	Men	7,07%	10,86%	5,05%	65,12	-3,79%	140,00	2,02%	215,00	5,81%
		[198]	[396]	[396]		(0.070)		(0.159)		(0.001)
Accountants	Women & men	9,94%	6,93%	4,82%	143,48	3,01%	206,25	5,12%	143,75	2,11%
		[332]	[664]	[664]		(0.049)		(0.001)		(0.051)
	Women	10,2%	7,5%	4,8%	136,00	2,71%	212,50	5,42%	156,25	2,71%
		[166]	[332]	[332]		(0.152)		(0.011)		(0.073)
	Men	9,64%	6,33%	4,82%	152,38	3,31%	200,00	4,82%	131,25	1,51%
		[166]	[332]	[332]		(0.092)		(0.019)		(0.199)
Clericals	Women & men	9,38%	8,66%	4,0%	108,20	0,71%	235,71	5,40%	217,86	4,69%
		[352]	[704]	[704]		(0.351)		(0.000)		(0.000)
	Women	13,07%	13,07%	6,53%	100,00	0,00%	200,00	6,53%	200,00	6,53%
		[176]	[352]	[352]		(0.500)		(0.006)		(0.002)
	Men	5,68%	4,26%	1,42%	133,33	1,42%	400,00	4,26%	300,00	2,84%
		[176]	[352]	[352]		(0.234)		(0.003)		(0.012)
Executives secretaries	Women & men	13,75%	12,19%	6,88%	112,82	1,56%	200,00	6,88%	177,27	5,31%
		[160]	[320]	[320]		(0.314)		(0.007)		(0.011)
	Women	21,25%	18,75%	10,00%	113,33	2,50%	212,50	11,25%	187,50	8,75%
		[80]	[160]	[160]		(0.323)		(0.009)		(0.013)
	Men	6,25%	5,63%	3,75%	111,11	0,63%	166,67	2,50%	150,00	1,88%
1		[80]	[160]	[160]		(0.423)	1	(0.191)	l I	(0.214)

Table 6: The rates of call-backs differentiated by age and age gap

NOTE: The number that is between brackets below the rate of call-backs is the number of sent curricula; the number between brackets of the last column is the P-value. The P is derived from Z statistic differences of proportions

Z-statistic = 
$$\frac{\left|P_{male} - P_{female}\right|}{\sqrt{\left(N_{male} + N_{female}\right) / \left(N_{male} \cdot N_{female}\right) P_{total} \cdot (1 - P_{total})}}$$

### **Conclusions and extensions**

Most of relevant literature on this topic finds strong empirical evidence of the existence of sex discrimination in access to jobs and maternity penalty for women. However, in our experiment, we found a clear **evidence of sex segregation** (mainly to men) which can be considered a way of labour discrimination which can generate crowded markets. That is, men receives less calls for an interview in a traditionally female occupation like "secretarial" and in an integrated occupation like "accountant" than women and these differences are statistical significant. However, for a conventionally male occupation, "sales representative", firms haven't discriminated against women, they contacted in a similar number with men and women: the rates of call-backs were very similar. These results are similar to the ones of Rich and Reich (2006.b) and the ones of Neumark *et al* (1996).

The outcomes can be the proof that some of the **female or integrated occupations are shifting into females occupations** in a context of important presence of women in the labour market. Furthermore, taking into account, the female rate of call-back is higher for the low profile occupations; this can be considered a signal of this phenomenon of feminization for the lower profiles of the occupations, **confirming the thesis of dual and crowded markets.** 

One possible explanation to the different obtained results from the expected ones could be the **relative 'low qualification' profile of the chosen professions**. Even though, we have distinguished between two levels of qualifications, and we have seen that women receive higher rates for call-backs in the low-profile occupation, the highest profile jobs we have selected do not belong to the highest hierarchy of the professional career. We omitted those top jobs due to the fact that they are not covered using the job searching web sites. Therefore, we do not have in our sample top executive jobs, where there is a strong evidence of glass-ceiling.

Moreover, we didn't get an evidence of maternity/paternity penalty. It seems that firms penalise for having children and it appears that this penalty is higher for women (the gap single-married for women is higher than 100 for the 6 selected occupations, while the same gap for men is only higher for 3 of the 6 chosen occupations, but the gap is not statistically significant for any of the occupations. Therefore, according with our end results, employers don't punish candidates with children for the selected occupations, probably because they rely that today the rate of fertility is too low and she also considers that most of the parents don't interrupt their careers due to family restrictions and besides that the selected professions are not very work demanding.

Finally, but not least important, we observe a high evidence of age discrimination, even though our older age is only 38 years old, at the initial stage of the hiring process. Indeed, applicants of 28 years old have a rate of call-backs 77% higher than the ones of 38 years old. This fact is very relevant because in the 38 group CV's we have included the appropriate work experienced and we have not included any unemployment experience. Therefore, we are talking about 38 year old workers with a long job career.

Due to the character of our experiment, we can not ensure the nature of this discrimination process. However, at this point of the study we can outline several possible explanations for this finding:

- For the selected occupations (all with low or medium qualifications) the employers seem to prefer younger candidates, who perhaps have lower wage expectations. Moreover, considering that all our candidates were working at the time that they send the applications, the prospective employers could assume that the older ones will demand a higher salary to abandon their former job than the younger ones.
- As it is generally accepted the younger people have a higher degree of flexibility to learn new tools, technologies, adapt to different organization structure, geographical mobility, etc. Even though we have defined the CV's giving the 38 candidates the same language, computer, etc. knowledge than their 28 counterparts, we could assume than the problem of unobservable variables persist. Indeed it seems that the prospective employer still assign a 'lower' productivity to the 38 year old people, despite the sent signals on the CV.

From a point of view of the design of policies, it is important to mention that public policies are mainly focused on fighting sex and race discrimination. However, it seems that sex segregation and age discrimination are becoming very important issues in

**our labour markets**. Moreover, in a context of ageing of the population, combating age discrimination should be a main goal of the political agenda, as the only way to guarantee the financial future of the pensions systems in Europe.

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