JOB SEARCH BEHAVIOUR*

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JOB SEARCH BEHAVIOUR
The Probability of Searching for a Job and Job Search Effort using Pooled Cross-Sectional Data

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ABSTRACT

This paper examines the job search behaviour of the working age population non-employed, and the job search intensity of job seekers, using pooled cross sections for the period 1987 to 1991. Our purpose is to examine the changes occurred in job search behaviour in the Spanish labour market and the factors behind such changes, and how the Public Employment Office (INEM) and the unemployment benefits have affected job search behaviour.

KEYWORDS: Unemployment, Job Search, Qualitative Choice Models.

RESUMEN

Este trabajo examina el comportamiento en la búsqueda de trabajo de los individuos en edad de trabajar que no estan trabajando, y la intensidad en la búsqueda de trabajo de aquellos que activamente buscan trabajo. Utilizamos secciones cruzadas conjuntas del periodo desde 1987 hasta 1991. El propósito es examinar los cambios producidos en el comportamiento de búsqueda de trabajo y los factores determinantes de dichos cambios, igualmente se estudia como el INEM y los subsidios de desempleo han podido afectar dicho comportamiento de búsqueda.

PALABRAS CLAVE: Desempleo, Búsqueda de Empleo, Modelos de Elección Cualitativos.

I. INTRODUCTION.

In this paper we investigate the determinants and the extent to which changes have occurred in the job search behaviour of non–working individuals. To do so, we use data drawn from the Spanish Labour Force Survey.

The major problem in the recent evolution of the Spanish labour market is unemployment. The unemployment rate is persistent at very high levels and its duration composition poses an additional problem. The length of time that an individual tends to be unemployed is also very high, compounding the situation. On average, during the period of economic growth (1987–1991), around 57.4% of those unemployed were so for more than a year. The likelihood that a person who is out of work and who is looking for a job will become employed appears to be very low.

Therefore, it seems essential to us to examine what determines the probability of getting a job or, its equivalent, what determines the probability of leaving the unemployment pool, to be able to shed some light on the unemployment problem.

The probability of leaving unemployment has two components. First, the probability of receiving a job offer (with its associated wage). And, second, the probability of accepting the job offer, i.e., the probability of the job offer exceeding the reservation wage.

The literature on unemployment duration has focused mainly on the acceptance probability and the reservation wage criterion, together with studies on unemployment duration and wage data directly (Lancaster and Chesher (1983), Lancaster and Nickell (1980), Narendranathan and Nickell (1985)). However, studies which examine the probability of receiving a job offer are less common in the literature (Wadsworth, 1991).

The duration of unemployment based on the reservation wage criterion has already been examined in Spain in the case of men (Andres et al. (1989)). In this paper we examine the probability of receiving a job offer. This probability is directly affected by the job

search behaviour of the individual. The likelihood of receiving a job offer increases with the use of more effective methods of job search, and with higher levels of job search intensity, i.e., more time, expenses, and more methods used.

The paper is organised as follows. In Section II we describe our framework of analysis and the data at hand. Our study of job search behaviour is twofold. First, in Section III, we examine the determinants of the likelihood of searching for a job. This is an initial approach to tackle the factors which make an individual decide to search for a job. The main purpose of this section is to provide some answers to questions such as what influences job search behaviour, and whether or not job search behaviour has changed over time. Second, in Section IV, we focus on the determinants of job search intensity in the case of those individuals searching for a job. Our aim is to understand what determines the intensity of searching for a job and to see whether there has been a change in job search intensity in the Spanish labour market in recent years. Throughout both sections we will examine important question such as whether or not the unemployment benefit system has affected job search behaviour, if the provision of unemployment benefits reduces job search behaviour, if the Public Employment Office System (INEM) affects job search behaviour positively or negatively, and how the duration of unemployment affects job search behaviour. In Section V we present the main conclusions of our investigation.

II. FRAMEWORK OF ANALYSIS AND DATA.

The purpose of this work is to study the factors which influence the individual's job search behaviour. Unemployment duration models and models of reservation wages have been predominant in the literature regarding job search. However, it is also important to focus on the probability of receiving a job offer, which is determined by the job search behaviour of the individual.

Devine and Kiefer (1991)[2] present evidence, with regard to unemployment duration, that the influence of the rate of job offer arrivals is relatively more important than the probability of accepting the offer[3].

One of the more important issues addressed in studies of unemployment duration has been the role of unemployment benefits. The effect of unemployment benefits on unemployment duration is diverse. Many theoretical and empirical studies have focused on the reservation wage criterion (Mortensen, 1986; Nickell, 1979a, 1979b; Lancaster and Nickell, 1980; Narendranathan and Nickell, 1985). This states that the provision of unemployment benefits raises the reservation wage and, thus, reduces the probability of accepting a job offer which, in turn, increases the duration of unemployment. However, the provision of unemployment benefits also influences the probability of receiving a job offer (Wadsworth, 1991). The cost of searching could be reduced by the provision of such benefits, and the individual would then have an incentive to increase his job search activity. The two effects can have different directions.

The probability π of becoming employed is the product of the probability π_o of receiving a job offer and the probability π_a that the non–working individual will accept the offer:

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[2] Devine and Kiefer (1991)'s book is an excellent review of the literature on the search approach to empirical labour economics.

[3] According to the results they review, once an offer is received, workers almost always accept it (page 139).

$$\pi = \pi_o * \pi_a \tag{1}$$

Most empirical studies have focused on $\pi_a = \pi_a(w^r)$, where w^r is the reservation wage, and have studied the effect of the provision of unemployment benefits, b, on π_a. The results of these studies establish that $\partial\pi_a/\partial b<0$, but with little agreement as to the magnitude of the effect (Devine and Kiefer (1991)).

This paper is concerned with the determinants of π_o. The job offer probability is a function of both the level of demand σ and the job search activity of job seekers, ψ:

$$\pi_o = \pi_o(\sigma,\psi) \qquad (\partial\pi_o/\partial\sigma)>0 \text{ and } (\partial\pi_o/\partial\psi)>0 \tag{2}$$

We thus examine the job search activity of individuals seeking jobs. In the first stage we will examine the factors which influence the individual's decision to search for a job. In the second stage, we will examine the factors which influence the individual's effort and intensity in searching for a job.

In terms of the standard job search framework, potential job seekers would evaluate the present discounted utility (or costs and returns) in deciding whether or not to search for a job. They will chose the option which produces the higher expected utility (or net expected return). Similarly, the level of job search effort undertaken by the job seeker will depend on the evaluation of the present discounted net returns of expending a certain amount of time and expenditure in searching for job.

Let s_i^* be the expected difference between the utility of searching for a job and the utility of not searching at all, given observed economic variables Z_j (e.g. unemployment, vacancies, and wages), as well as other variables in the information set of individual i[4]. We specify s_i^* as follows:

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[4] We could also think of s_i^* as the expected difference between the utility of searching for a job using a certain level of effort and the utility of searching using a lower level of effort, given observed economic variables and other variables in the information set of the individual i.

$$s_i^* = \eta_0(X_i)+\eta_1(X_i)Z_i+\epsilon_i \qquad i=1,N \tag{3}$$

where X_i denotes a vector of individual characteristics, which includes human capital, family situation, and previous labour market status variables, Z_i denotes a vector of local economic conditions, ϵ_i is a disturbance term that includes unobserved variables, $\eta_k(X_i)= \eta_{k0}+\eta_{k1}X_i$, k=0,1; and $\eta_k(X_i)Z_i$ allows for possible interactions between personal characteristics and local economic conditions.

The individual will search for a job if $s_i^*>0$, and the probability of this event, conditional on X and Z, can be written as:

$$\begin{aligned}&\text{Prob}(s_i^*>0)= \\ &=\text{Prob}(\eta_0(X_i)+\eta_1(X_i)Z_i+\epsilon_i>0) = F(\eta_0(X_i)+\eta_1(X_i)Z_i)\end{aligned} \tag{4}$$

where F is the cumulative distribution function of $-\epsilon_i$.

The data used come from the "Encuesta de Poblacion Activa" (EPA–the Spanish Labour Force Survey) conducted by the Instituto Nacional de Estadistica (INE–the Spanish National Statistics Office). The EPA is conducted on all members of around 60,000 households (approximately 200,000 persons) each quarter. The questions about job search behaviour in the current form were introduced in the second quarter of 1987, following Eurostat guidelines.

We have five cross–sections of data, corresponding to the surveys from 1987 to 1991, which we pool together. In theory, pooling would allow us to study whether the decision to search for jobs and job search effort have been changing over time and, if so, in what direction. It would also allow us to study the effect of general economic conditions (national aggregate economic variables) which may influence job search decisions. For example, the probability of job searching may be lower at higher overall unemployment

rates. However, we only have five years of data and this is not much to assess the impact of business cycle variables.

In our study an individual is considered to be searching for a job if he responds to the question about his relationship with economic activity the last week that he was without a job, is available for work, and is actively searching for a job. Moreover, we cross checked this information with the question about whether or not he will be able to take up a job as soon as possible (within a maximum period of two weeks). Only those who give an affirmative response are considered to be actively searching for a job. And, finally, we cross checked this information with the question about which methods (the survey lists several alternative methods of searching for a job) they used to search for a job. Those who responded that they have not started any procedure yet are not considered as job seekers. In the Labour Force Survey these three questions are used together to define whether an individual is unemployed or not.

Our sample includes men and women, aged 16 to 64, living in one of the standard 17 regions or "Comunidades Autonomas" who are non–working in the week of reference (that is, working age population not employed). We include women to assess if there are important distinctions with respect to men and, if so, what these are. One of the major changes in the Spanish labour market during the past decade has been the increased participation of women (their participation rate rose from 26.8% in 1981 to 34.2% in 1992).

In the Data Appendix, we report detailed information about the construction of the variables used in this work. We also provide tables with information on the data about our sample of individuals from the EPA.

III. THE LIKELIHOOD OF SEARCHING FOR A JOB.

We now present the results of the maximum likelihood estimation of equation (4) assuming a logistic distribution for F, in Table 1. In Table 1 we also present the results when the normal distribution is assumed for F. We present our results for male (column 1 and 2) and female (column 3 and 4) pooled samples. We do so, because the likelihood ratio test for a sample split between males and females is highly significant (LR=2029.51 against $\chi^2(37)$)[5]. The estimated effects with the probit model are very similar to the ones with the logit[6]. We performed a likelihood ratio type test for non–nested hypothesis, applying the method proposed by Vuong (1989), in order to test whether one of the two models fits the data better than the other[7]. The LR test suggests that the logit models fits the data better in the case of men, while the probit models seems to fit the data better in the case of women.

Let us examine the effect of different factors on the likelihood of searching for a job. We begin by considering the direct effects of the person's characteristics on the probability of job search. They all have the expected sign. The probability of searching for a job is higher for young people, particularly for those aged 25 to 34, and is much lower for people over 50. Yet, for men aged 16 to 24 the likelihood of job searching is lower. The effect of education is similar for men and women. People with low secondary education are the least likely to search for a job. Higher education increases the probability of searching for a job, especially among women. The implicit predicted probability estimates show that having a level of education higher than the standard individual (i.e., secondary education level)

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[5] The LR test for a sample split between male and female is also highly significant for each year sample (1987–1991).

[6] Once we divide the logit estimates by $(\pi/\sqrt{3})$, to allow for the fact that the standard deviation of the logistic distribution is $(\pi/\sqrt{3})$ while that of the standard normal distribution is unity. The remaining difference will be due to the difference in the distribution function.

[7] See Appendix A for a description and application of the Vuong's Likelihood Ratio Test for non–nested hypothesis.

more than doubles the probability of searching. Overall, women are less likely to search for jobs than their male counterparts.

The dummy variables describing the family structure are very interesting. We obtain a positive effect regarding children. Men who are not heads of household and who are married are more likely to search for a job; while, men who are heads of household and whose spouses do not work are less likely to search. These effects are with respect to men who are single and heads of household. The former are individuals living in their parents' home, with their wives, probably to alleviate the cost of living on their own, but they also have to search for a job to support their families and contribute to the common household. One of the reasons that men who are heads of household with non–working spouses are less likely to search for a job could be due to the way the social benefit system works. The existence of income support (an unemployment subsidy of 75% of the minimum wage) for those unemployed with family responsibilities and no other household income exceeding the minimum wage, could explain their lower job search likelihood. Another reason could be that working spouses would give them a connection to the labour force and, thus, greater access to information. Therefore, those without a working spouse would lack this advantage and this could make them less likely to search. For women, those who are non–heads of household and single are more likely to search for a job than are single head of household women, while married head of household women, with and without working spouse, are the least likely to search.

Let us now examine the effect of **the individual's own previous employment record.** Those individuals who have work experience, that is they have worked before, are more likely to be actively searching for a job. Within the set of individuals with previous work experience, those who have been without a job for only a short time are more likely to be searching for a job than those in long term unemployment. Individuals who have worked either in the construction, service or agriculture sectors are more likely to search for a job than are workers in the industry sectors. It is important to note that for women their

previous economic sector does not affect the probability of searching for a job. Previous employees, particularly those who were in the public sector, tend to search for jobs less than the previously self–employed. This effect is stronger for men than for women. We also examine the effect of the individual's previous professional status on the job search probability. For men, managers, and agriculture workers are the most likely to search for a job, while administrative workers are the least likely. For women, managers, other service workers, and professionals are the most likely to search for jobs, while manufacturing, construction, and agriculture workers are the least likely to search for a job. Individuals with previous work experience who are out of work due to the completion of a contract or because they were laid off are more likely to search for jobs than those who quit their previous jobs. People who had a long tenure in their previous jobs (3 or more years) are more likely to withdraw from the labour market once they are out of work.

Let us now examine the effect of **the Public Employment Office (INEM) and of Unemployment Benefits** on the probability of searching for a job. Those individuals who are registered at the INEM appear to have a stronger attachment to the labour market. The likelihood of searching increases when the individual is registered. Furthermore, if they are receiving unemployment benefits, they seem to be even more likely to search for a job. This seems reasonable given that to register at the INEM for a job is considered as one form of job search. However, not all individuals registered are actively searching for jobs; some people simply sign on for unemployment benefits. Therefore, the INEM works as means of keeping workers attached to the labour market and of helping them to search for a job by providing information and/or providing unemployment benefits which help to finance the job search.

Let us now examine the effect of the **economic conditions** in the individual's region of origin on the probability of searching for a job. For women, the effects of local economic conditions are significant and with the expected sign. Higher unemployment rates

discourage job search activity, and so do higher vacancy rates[8]. But higher real wages increase the likelihood of job search. However, for men, only the unemployment rate has a significant effect on the probability of job search, and this effect is positive. Men may have family and social responsibilities irrespective of the economic situation, hence, more difficult times may simply have to be overcome by increasing job search activity. Therefore, it seems that harder economic times produce different responses in men and women: while men increase their job search, women are less likely to search for jobs. Overall, it appears that female job search activity is more responsive to economic conditions than is male job search activity. This result is in the line of the findings reported by empirical labour demand models. These models find that men only react slightly to economic conditions, but women do react significantly. However, they also find that married women are the ones that react significantly to economic conditions, while single women behave like men. We confirmed the latter result by interacting local economic conditions with marital status.

Finally, we examine **the evolution over time of the probability of searching for a job.** We can observe that the likelihood of searching for a job has been falling continuously during the period under analysis, as the year dummies suggest. Therefore, we could conclude that the not employed working age population has been progressively less likely to search actively for a job throughout the recovery period (1987–1991). It is possible that 1987 was a peak year for job search decisions given the good prospect of the economy at the time.

[8]This could be the case if higher vacancy rates are reflecting that there are more vacancies in professions where there are less available people. We may have problems of mismatch. In this case, higher vacancy rates are not signaling that it is easier to get a job, but the contrary. It is a peculiar result that needs future research.

IV. JOB SEARCH EFFORT.

We have examined the effect of personal characteristics, previous work experience, local economic conditions, and of the INEM on the probability of searching for a job. However, it is also important to examine the intensity and effort each individual puts into job search. The probability of receiving a job offer would increase with job search effort. Job search effort is a function of time and expenditure devoted to job search. It is suggested in the literature (Devine and Kiefer (1991)) that the most appropriate measure of search effort would be the number of actual job contacts made. Yet, such information is not normally available. Several studies (see Devine and Kiefer (1991) for a review) measure job search effort using the reported hours spent searching. Given the absence of such information on our data set, and following Wadsworth (1991), we proxy job search effort by the extensiveness of the job search.

The number of search methods used by out of work job seekers is used as our measure of job search effort and intensity. We model job search effort as a function of a vector of personal characteristics, the previous working status of the individual, the INEM status of the individual, and a set of economic variables which aim to measure the impact of local economic conditions. An individual is considered to search for a job with greater effort or intensity if he is using two or more methods to search for a job.

We present our final results of the maximum likelihood estimation of the probability of job search effort, that is, the probability that an individual is searching for a job with effort or intensity, in Table 2. We estimate equation (4) for job search effort assuming a logistic distribution. We present the estimated results for men (column 1) and for women (column 3) separately, because the likelihood ratio test for a sample split between male and female is highly significant (LR=179.42 against $\chi^2(37)$). We also estimate equation (4) assuming a normal distribution. Vuong's likelihood ratio test suggests that the probit model fits the data marginally better than the logit model (LRV=3.3382 for men,

LRV=3.754 for women). However, both models present very similar results about the different effects on job search effort.

Let us consider first the direct effects of the person's characteristics on job search effort. The probability of job search effort is higher for young people, aged 25 to 34, and is much lower for those over 50. For women specifically, job search effort is also lower among those aged 16 to 24. The probability of job search effort rises with the level of education among both men and women.

The dummies describing the family structure have different effects for men and women. Having children raises the likelihood of job search effort for men, but its effect is not significant for women. Women who are married but not heads of household, together with women with a working spouse, are less prone to search with effort than are single head of household women. Family structure does not seem to affect greatly the likelihood that men will search for jobs with more effort.

As to the individuals's own previous work experience, men who have been unemployed for a short time are less prone to search for a job with effort. This may be due to the fact that they could be waiting for unemployment benefits to run out. Men whose previous job ended because the contract expired or because they were laid off are more likely to invest greater effort in the job search than are those who quit their jobs. Among women, previous work experience does not seem to affect much the likelihood of searching for a job with greater effort.

Let us now examine the effect of local economic conditions. For both women and men, all the economic variables have the expected sign and are statistically significant. Higher unemployment raises the likelihood of job search effort, presumably reflecting that more difficult economic conditions require greater effort from those searching for a job. Higher levels of available vacancies raise job search effort as well, reflecting a greater likelihood of finding a job. An increase in real wages seems to reduce the likelihood of job search effort. This last result seems to be counter–intuitive.

What about the evolution of job search effort over the period under analysis? The year dummies reflect an increase in the likelihood of job search effort. The results suggest a U form in this evolution, with the last year 1991 showing the highest likelihood.

The Effect of the Public Employment System and of Benefits on Search Effort.

Finally, we focus on the effect of the INEM and unemployment benefits on job search effort. To be registered at the INEM appears to have a positive effect on the probability of job search effort. Moreover, to receive unemployment benefits seems to increase this likelihood even further. The INEM then appears to have a positive effect on both the likelihood of searching for a job and on job search effort; it helps people avoid being disfranchised from the labour market. It seems that the INEM is the link which keeps workers attached to the labour market.

However, there is a potential for misinterpreting the results if one assumes that the INEM cannot truly be considered a legitimate method of job search. The INEM is not an efficient job placement office. Furthermore, people register because they have to do so in order to claim any type of benefits and, to be able to take up a job, they need to be registered at the INEM[9]. Therefore, we re–estimate the probability of job search effort having removed attendance to the INEM as a method of job search. The results are presented in table 3 for men and women separately.

The new results present important qualifications to the previous results. First, women now seem to be more prone to search for jobs with more intensity than men. Second, higher wages do now tend to increase job search effort. Higher wages would make it more profitable to increase one's job search effort in the event of obtaining a job. The counter intuitive effect that we got above no longer holds. Third, registration at the INEM

[9]Many people register once they have found a job because of the legal requirement to do so. That is why, in the data published from the INEM records, there are named and unnamed job offers. The latter are those in which job and worker are brought together at the INEM, which means that they made the contact before and they are now legalizing the contact.

now has a strong negative effect on search effort (this negative effect is slightly lower for those receiving unemployment benefits). Fourth, the U form of the evolution of search effort during the period under analysis is reinforced.

As discussed above, the INEM provides a means of keeping individuals attached to the labour market. But for many of those registered at the INEM their attendance there is the only method of job search. So the INEM has a second effect, but this time the effect is negative: it reduces the effort put into searching for a job because no alternative methods of job search are used.

The use of the INEM as a method of job search appears to reduce the propensity to use other methods. This result would be irrelevant, if the INEM is an efficient employment–placement office. However, if the INEM is an inefficient employment–placement office, this result produces certain concern about the effect on job search of the INEM.

V. CONCLUSIONS.

In this paper we have examined the different factors which affect job search behaviour in Spain. We also examined the evolution of job search behaviour during the period of economic growth in the Spanish economy from 1987–1991. Finally, we examined the effect of the Spanish Public Employment System (INEM) and of unemployment benefits on job search behaviour. We used the data provided by the Spanish Labour Force Survey from 1987 to 1991.

The main conclusions of our analysis of Spanish job search behaviour can be summarised as follows:

First, men seem to search for jobs more than women and also do so more intensively. However, women appear to respond more intensively to economic conditions in deciding whether or not to search for jobs than do their male counterparts.

Second, job search behaviour during the period under analysis (1987–1991) seems to have changed. The likelihood of searching for a job has declined during this period. After 1987 job search effort declined, but it again reached its 1987 level in 1991.

Third, the effect of the INEM and of unemployment benefits is twofold. It has a positive effect in the sense that it helps to keep people attached to the labour market and, thus, helps to avoid disfranchisement. However, it also has a negative effect, as it tends to reduce job search effort. Individuals registered at the INEM tend to use no other methods of job search other than their attendance at the INEM. This result produces certain concern about the effect on job search of the INEM if the INEM is an inefficient employment–placement office. Yet, further research, using the data of the INEM's records, would be useful to qualify this result.

Fourth, those who have been out of work for only a short period (less than 12 months) are more likely to search for jobs. Yet, the intensity or effort used on job search seems to be lower than that of those who have been without a job for longer periods. This

could be caused by the fact that people who have been out of work for a short period of time are still receiving unemployment benefits while those who have been without a job for longer periods may have run out of unemployment benefits. To examine this we would need the data of the INEM's records (i.e., SIPRE: "Sistema Integrado de Prestaciones Economicas"). However, this data set is not readily available[10].

Therefore, in light of these results, we can conclude that the INEM produces a key positive effect on the functioning of the labour market, but it needs to be reformed to allow for the possibility of greater job search effort on the part of the individuals. One way could be to separate both functions of the INEM, namely, an employment–placement office and a separate unemployment benefit administration office. Additionally, more information needs to be provided and made more widely spread and readily available across the entire country.

[10] This is one of our projects for future research.

TABLE 1

Choice-Based Estimation of the Probability of Searching for a Job among the Working Age Population not Employed (1987-1991)

	1 Male Logit	2 Male Probit	3 Female Logit	4 Female Probit
Constant	-3.2556*	-1.7655*	-7.2448*	-3.6711*
Aged 16 to 24	-0.2263*	-0.1201*	0.1447*	0.0935*
Aged 25 to 34	0.7269*	0.3433*	0.4046*	0.2226*
Aged 50 to 70	-1.3028*	-0.6711*	-1.1290*	-0.5580*
No education	0.7378*	0.3668*	0.3391*	0.1755*
Primary Education	1.0558*	0.5222*	0.5897*	0.3021*
Upper Secondary	0.8836*	0.4492*	1.0184*	0.5396*
Higher education	0.1753*	0.1176*	0.6138*	0.3289*
Dependent children	0.4864*	0.2595*	0.2485*	0.1271*
Not head of household, single	0.1478	0.0836	0.3225*	0.1644*
Not head of household, married	0.5557*	0.2801*	-0.8604*	-0.4320*
Working spouse	0.0010	-0.0118	-0.8505*	-0.4592*
Non-working spouse	-0.2717*	-0.1547*	-0.9990*	-0.4491*
Previous Working Experience				
Ever work	-0.9458*	-0.4658*	-0.8585*	-0.4476*
Short time Unemployed (<12m)	0.4002*	0.1985*	0.2925*	0.1577*
Agriculture	0.4729*	0.2478*	-0.1794	-0.0926
Construction	0.8262*	0.4102*	0.3063	0.1634
Services	0.5208*	0.2637*	-0.0279	-0.0059
Employee in public sector	-1.0527*	-0.4944*	-0.2009*	-0.0812
Employee in private sector	-0.6822*	-0.3436*	-0.1168	-0.0371
Professionals & Technicians	0.0616	0.0017	0.3662*	0.1586*
Managers	0.4849*	0.2153*	1.0839+	0.5399+
Administrative workers	-0.2140*	-0.1131*	0.2751*	0.1246*
Commerce workers	0.2827*	0.1321*	0.2971*	0.1532*
Other service workers	-0.1221	-0.0740	0.5616*	0.2654*
Agriculture workers	0.4447*	0.2133*	-0.2025	-0.1221
End Contract	1.4732*	0.7291*	0.6068*	0.3049*
Laid off	1.0837*	0.5589*	0.9316*	0.4834*
Job Tenure (3 or more years)	-0.1835*	-0.0781*	-0.0870+	-0.0215
Registration at INEM				
Not Receiving U. Benefits	4.1389*	2.3367*	3.9133*	2.1415*
Receiving Unemployment Benefits	4.5527*	2.5408*	4.5268*	2.4977*
Local Economic Conditions				
Unemployment Rate	1.2192*	0.6895*	-1.8554*	-0.8121*
Vacancy Rate	2.8521	1.2947	-19.5161+	-7.6000
Wage Rate	-0.1163	-0.0634	0.5664*	0.2623*
D87	0.7672*	0.3834*	0.6706*	0.3451*
D88	0.7042*	0.3553*	0.6381*	0.3164*
D89	0.4020*	0.2001*	0.4292*	0.2075*
D90	0.1332*	0.0647*	0.1324*	0.0614*
Association of predicted prob. and observed responses				
concordant	96.6%	96.6%	96.0%	96.0%
tied	0.1%	0.1%	0.2%	0.2%
- log likelihood	39896.001	39950.054	69024.23	68432.926

TABLE 2

Estimation of Search Effort of Job Seekers

	1 Male Logit	2 Male Probit	3 Female Logit	4 Female Probit
Constant	2.3210*	1.3814*	1.7099*	1.0108*
Aged 16 to 24	0.0037	0.0016	-0.0786*	-0.0490*
Aged 25 to 34	0.1024*	0.0630*	0.0199	0.0125
Aged 50 to 70	-0.2297*	-0.1429*	-0.3026*	-0.1859*
No schoolling	-0.1777*	-0.1116*	-0.3189*	-0.2001*
Primary education	-0.1711*	-0.1066*	-0.2438*	-0.1515*
Upper secondary	0.0099	0.0052	0.2520*	0.1549*
Higher education	0.2671+	0.1602*	0.3113+	0.1902*
Children	0.1094*	0.0681+	-0.0333	-0.0181
Not head of household, single	-0.0060	-0.0034	-0.0996	-0.0588
Not head of household, married	0.0071	0.0048	-0.3810*	-0.2330*
Working spouse	0.1155	0.0704	-0.6857*	-0.4266*
No working spouse	-0.0747	-0.0461	-0.5886	-0.3573+
Previous Work Experience				
Ever work	-0.0011	0.0003	-0.0230	-0.0134
Short time Unemployed	-0.0630*	-0.0391+	-0.0461	-0.0291
Agriculture	-0.1511	-0.0925	-0.1202	-0.0765
Construction	0.0435	0.0279	-0.0136	-0.0120
Services	0.0782*	0.0490	-0.3452*	-0.2144*
Employee in public sector	-0.2716*	-0.1680*	-0.0146	-0.0109
Employee in private sector	-0.0741	-0.0456	-0.0299	-0.0199
Professional & Technicians	0.2632*	0.1604*	0.3699*	0.2318*
Managers	-0.0646	-0.0370	-0.3588	-0.2277
Administrative workers	0.1592*	0.0975*	0.5572*	0.3457*
Commerce	0.1204	0.0753	0.4077*	0.2544*
Other service workers	0.1059+	0.0652	0.5007*	0.3115*
Agiculture workers	0.2132*	0.1311*	0.1778	0.1129
End Contract	0.1405*	0.0861*	-0.0221	-0.0136
Laid off	0.2492*	0.1537*	-0.0471	-0.0296
Job Tenure	-0.0033	-0.0030	-0.0458	-0.0282
Registration at INEM				
Not Receiving U. Benefits	1.1290*	0.6897*	0.8269*	0.5084*
Receiving Unemployment Benefits	1.2887*	0.7882*	0.9262*	0.5699*
Local Economic Conditions				
Unemployment Rate	3.6794*	2.2718*	3.3878*	2.0957*
Vacancy Rate	77.3564*	47.9169*	71.6381*	44.6448*
Wage Rate	-0.6064*	-0.3652*	-0.4222*	-0.2539*
D87	-0.0170	-0.0121	-0.0052	-0.0042
D88	-0.2497*	-0.1550*	-0.1541*	-0.0967*
D89	-0.2845*	-0.1765*	-0.1872*	-0.1166*
D90	-0.0715*	-0.0439+	-0.0455	-0.0286
Association of predicted prob. and observed responses				
concordant	62.5%	62.5%	62.9%	62.9%
tied	0.6%	0.6%	0.6%	0.6%
- log likelihood	43118.295	43124.295	42036.078	42039.395

TABLE 2'

Estimation of Search Effort of Job Seekers

	1 Male Logit	2 Male Probit	3 Female probit	4 Female Logit
Constant	2.2888*	1.3536*	1.0089*	1.7084*
Aged 16 to 24	--	--	-0.0649*	-0.1043*
Aged 25 to 34	0.1013*	0.0628*	--	--
Aged 50 to 70	-0.2243*	-0.1395*	-0.1830*	-0.2968*
No schoolling	-0.1766*	-0.1103*	-0.1993*	-0.3167*
Primary education	-0.1776*	-0.1102*	-0.1522*	-0.2446*
Upper secondary	--	--	0.1555*	0.2531*
Higher education	0.2637*	0.1588*	0.1895*	0.3101*
Not head of household, married	--	--	-0.1824*	-0.2947*
Working spouse	0.2030*	0.1246*	-0.3855*	-0.6173*
No working spouse	--	--	-0.3265	-0.5372+
Previous Work Experience				
Short time Unemployed	-0.0644*	-0.0397*	-0.0360*	-0.0579*
Services	0.1137*	0.0704*	-0.2160*	-0.3472*
Employee in public sector	-0.2095*	-0.1296*	--	--
Professional & Technicians	0.1921*	0.1159*	0.2177*	0.3499*
Administrative workers	--	--	0.3273*	0.5299*
Commerce	--	--	0.2362*	0.3799*
Other service workers	--	--	0.2933*	0.4730*
End Contract	0.1161*	0.0711*	--	--
Laid off	0.2156*	0.1328*	--	--
Registration at INEM				
Not Receiving U. Benefits	1.1311*	0.6910*	0.5001*	0.8141*
Receiving Unemployment Benefits	1.2876*	0.7876*	0.5670*	0.9214*
Local Economic Conditions				
Unemployment Rate	3.7365*	2.3052*	2.1274*	3.4405*
Vacancy Rate	78.9405*	48.9866*	42.7797*	68.5807*
Wage Rate	-0.6050*	-0.3633*	-0.2621*	-0.4362*
D88	-0.2400*	-0.1481*	-0.0854*	-0.1366*
D89	-0.2740*	-0.1690*	-0.1046*	-0.1685*
D90	-0.0631*	-0.0378*	--	--
Association of predicted prob. and observed responses				
concordant	62.4%	62.4%	62.8%	62.8%
tied	0.6%	0.7%	0.6%	0.6%
- log likelihood	43134.952	43140.864	42047.575	42044.207

TABLE 3

Estimation of Search Effort of Job Seekers
Alternative Definition of Search Effort

	1 Male Logit	2 Male Probit	3 Female Logit	4 Female Probit
Constant	-18.3107*	-10.5444*	-15.2994*	-8.8218*
Aged 16 to 24	-0.0225	-0.0092	-0.0125	-0.0085
Aged 25 to 34	0.1072*	0.0610*	-0.0462	-0.0248
Aged 50 to 70	-0.1690*	-0.0945*	-0.2995*	-0.1658*
No schoolling	-0.6744*	-0.3647*	-0.7072*	-0.3922*
Primary education	-0.3154*	-0.1851*	-0.3986*	-0.2306*
Upper secondary	0.0587	0.0369	0.1621*	0.0977*
Higher education	0.1420+	0.0920+	0.1016+	0.0680+
Children	0.1825*	0.1025*	0.1119	0.0658
Not head of household, single	0.0441	0.0304	-0.0867	-0.0463
Not head of household, married	-0.0106	0.0102	-0.3483*	-0.1951*
Working spouse	-0.0276	-0.0112	-0.4438	-0.2494
No working spouse	-0.1619	-0.0845	-0.4156	-0.2593
Previous Work Experience				
Ever work	0.0566	0.0298	0.0472	0.0292
Short time Unemployed	-0.1762*	-0.0993*	-0.1601*	-0.0921*
Agriculture	-0.6367*	-0.3377*	-0.1417	-0.0628
Construction	-0.2930*	-0.1575*	-0.0564	-0.0303
Services	0.1598*	0.0890*	-0.1761*	-0.1003+
Employee in public sector	-0.0727	-0.0427	-0.4351*	-0.2368*
Employee in private sector	0.0686	0.0391	-0.2990*	-0.1619*
Professional & Technicians	0.1208	0.0732	0.6284*	0.3436*
Managers	-0.0166	-0.0213	0.2217	0.0900
Administrative workers	0.2946*	0.1753*	0.7715*	0.4331*
Commerce	0.1160	0.0692	0.7090*	0.3994*
Other service workers	0.1120	0.0669	0.6129*	0.3415*
Agriculture workers	-0.1578	-0.0690	-0.1965	-0.1107
End Contract	-0.0527	-0.0346	-0.0597	-0.0338
Laid off	-0.0323	-0.0187	-0.1142	-0.0644
Job Tenure	0.0722	0.0448	-0.0596	-0.0280
Registration at INEM				
Not Receiving U. Benefits	-0.9349*	-0.5345*	-0.9751*	-0.5712*
Receiving Unemployment Benefits	-0.7492*	-0.4309*	-0.9332*	-0.5445*
Local Economic Conditions				
Unemployment Rate	0.6690*	0.3276*	0.8668*	0.4533*
Vacancy Rate	44.6543*	28.4012*	60.9123*	36.3733*
Wage Rate	2.6093*	1.4964*	2.2070*	1.2677*
D87	0.1507*	0.0894*	0.0885*	0.0559*
D88	-0.2418*	-0.1418*	-0.2186*	-0.1233*
D89	-0.2083*	-0.1148*	-0.1318*	-0.0726*
D90	-0.0746+	-0.0466+	-0.0722+	-0.0373
Association of predicted prob. and observed responses				
concordant	67.2%	67.2%	65.5%	65.6%
tied	0.6%	0.6%	0.7%	0.6%
- log likelihood	27951.046	27937.158	29660.977	29650.992

TABLE 3'

Estimation of Search Effort of Job Seekers
Alternative Definition of Search Effort

	1 Male Logit	2 Male Probit	3 Female Logit	4 Female Probit
Constant	-18.2877*	-10.5157*	-15.3656*	-8.8587*
Aged 25 to 34	0.1170*	0.0643*	-	-
Aged 50 to 70	-0.1764*	-0.1001*	-0.2889*	-0.1595*
No schoolling	-0.7188*	-0.3912*	-0.7413*	-0.4107*
Primary education	-0.3384*	-0.1991*	-0.4041*	-0.2334*
Upper secondary	--	--	0.1698*	0.1018*
Higher education	0.1249*	0.0810*	0.1216*	0.0792*
Children	0.1523*	0.0848*	--	--
Not head of household, married	--	--	-0.2696*	-0.1531*
No working spouse	-0.1477*	-0.0809*	--	--
Previous Work Experience				
Short time Unemployed	-0.1623*	-0.0924*	-0.1543*	-0.0879*
Agriculture	-0.8078*	-0.4185*	-	-
Construction	-0.3044*	-0.1659*	-	-
Services	0.1902*	0.1068*	-0.1339*	-0.0775*
Employee in public sector	--	--	-0.6162*	-0.3392*
Employee in private sector	--	--	-0.4989*	-0.2732*
Professional & Technicians	--	--	0.6739*	0.3697*
Administrative workers	0.2406*	0.1441*	0.8201*	0.4600*
Commerce	--	--	0.7382*	0.4163*
Other service workers	--	--	0.6777*	0.3777*
Registration at INEM				
Not Receiving U. Benefits	-0.9309*	-0.5327*	-0.9768*	-0.5704*
Receiving Unemployment Benefits	-0.7616*	-0.4387*	-0.9291*	-0.5420*
Local Economic Conditions				
Unemployment Rate	0.5997*	0.2882*	0.7170*	0.3645*
Vacancy Rate	44.5515*	28.3918*	61.3119*	36.5744*
Wage Rate	2.6209*	1.5020*	2.2139*	1.2720*
D87	0.1560*	0.0925*	0.0894*	0.0564*
D88	-0.2409*	-0.1409*	-0.2172*	-0.1225*
D89	-0.2094*	-0.1156*	-0.1314*	-0.0724*
D90	-0.0767+	-0.0478+	-0.0736+	-0.0383+
Association of predicted prob. and observed responses				
concordant	67.0%	67.0%	65.4%	65.5%
tied	0.7%	0.7%	0.7%	0.7%
- log likelihood	27973.263	27961.663	29684.108	29672.745

NOTES:

1. *: significant at 5%.
   +: almost significant at 5% (i.e. 1.8<t<1.96).
2. the constant term will determine the probability of searching for a job for individuals with the following characteristics: single heads of household, aged between 35 and 49, with secondary education, no children, previously self-employed in the industry sector as a manufacturing worker who quit his previous job, not registered with Employment Offices, and living in a hypothetical region.

Table 1: Sample size=312,524. Job searching frequency=25.86%.

Table 2: Sample size=64,223. Search effort frequency=54.30%.

Table 3: Sample size=64,223. Search effort frequency=18.30%

Table A1. Personal Characteristics.
Sample: working age population not employed. Males

	Searching					Not Searching
	Total	1987	1988	1989	1990	1991	
Total 94006	50.81	56.45	52.15	49.61	47.36	47.63	24.72
Age							
16—24	38.85	42.57	41.29	37.12	36.30	35.18	48.58
25—34	27.07	24.75	26.05	28.43	27.99	29.08	5.98
35—49	18.16	17.11	17.26	18.00	19.16	19.90	6.24
50—64	15.92	15.56	15.40	16.46	16.55	15.84	9.21
Education							
No schooling	14.78	14.73	14.87	15.61	14.60	13.99	20.14
Primary	64.62	66.59	63.94	63.30	63.54	65.46	47.57
Low Secondary	11.78	10.10	12.20	12.25	13.06	11.70	24.62
Upper Secondary	5.34	5.47	5.50	5.29	5.29	5.08	2.35
Higher	3.47	3.12	3.49	3.56	3.51	3.78	5.32
Family Status							
Head Household	37.22	35.71	35.9	37.80	38.65	38.88	40.21
Married	39.15	39.21	37.81	39.40	39.25	40.44	37.83
Children	30.88	30.20	29.77	30.86	31.25	32.85	26.11
Working Experience							
Never worked	23.12	27.49	25.90	22.95	19.60	17.41	52.10
Short duration	72.14	70.01	71.78	71.65	73.79	74.33	60.87
Economic Sector							
Agriculture	13.47	13.53	14.98	14.32	13.02	10.91	3.37
Industry	12.49	11.34	11.64	11.78	13.23	15.17	5.54
Construction	16.88	15.93	14.67	16.05	17.95	20.85	2.48
Services	20.77	17.33	18.61	21.15	23.79	24.72	6.01
Professional Status							
Professional and Technicians	2.08	1.81	2.11	2.07	2.37	2.13	0.56
Managers	0.33	0.34	0.31	0.25	0.40	0.34	0.58
Administrative workers	3.31	2.46	2.95	3.78	3.77	3.95	1.46
Commerce	3.19	2.73	2.82	3.36	3.56	3.74	0.91
Other service workers	5.92	4.98	5.11	6.14	6.77	7.15	1.42
Agriculture	13.55	13.64	15.08	14.58	13.02	10.85	3.34
Manufacturing and Const.	35.21	32.18	31.52	33.11	38.11	43.49	9.13
Working Status							
Self—Employed	2.77	2.67	2.66	2.70	2.89	2.86	2.87
Employees							
public sector	8.54	8.00	7.99	9.32	9.01	8.65	3.06
private sect.	52.29	47.47	49.25	51.16	56.09	60.14	11.46

Reasons for leaving previous job							
End Contract	43.45	33.16	39.92	44.92	50.36	53.21	11.39
Laid Off	11.39	16.33	11.49	10.38	8.24	8.96	1.42
Quit	8.76	8.65	8.49	7.99	9.40	9.47	12.99
Registration at INEM							
Not Registered	8.26	10.85	9.03	7.69	6.61	6.09	92.87
Registered							
Receiving UB	31.48	27.67	28.68	32.00	33.62	37.47	2.77
No UB	60.26	61.48	62.28	60.30	59.77	56.44	4.36

Source: "Encuesta de la Poblacion Activa", INE.
Percentages in the searching/no searching population by groups (e.g. the group of age adds up to 100).

Table A2. Personal Characteristics.
Sample: working age population not employed. Female

	Searching						Not Searching
	Total	1987	1988	1989	1990	1991	
Total 218518	49.19	43.55	47.85	50.39	52.64	52.37	75.28
Age							
16—24	46.01	54.70	49.76	45.37	41.83	38.69	20.76
25—34	32.62	27.87	31.29	33.70	34.53	35.45	14.54
35—49	16.64	12.88	14.65	16.34	18.62	20.62	27.66
50—64	4.74	4.55	4.31	4.58	5.01	5.25	37.04
Education							
No schooling	6.71	7.01	6.57	7.04	6.56	6.37	21.26
Primary	60.05	61.62	59.23	59.21	59.46	60.94	62.89
Low Secondary	17.85	16.29	18.04	17.87	19.39	17.52	11.80
Upper Secondary	9.76	9.79	10.45	10.10	8.94	9.45	1.92
Higher	5.64	5.30	5.71	5.78	5.64	5.71	2.13
Family Status							
Head Household	4.44	3.87	4.11	4.64	4.59	5.12	5.93
Married	39.15	31.70	35.02	37.92	40.62	43.68	71.62
Children	2.96	2.58	2.68	3.10	3.04	3.37	3.83
Working Experience							
Never worked	40.69	49.10	44.64	41.35	36.05	32.57	62.16
Short duration	71.06	73.31	71.53	71.28	70.77	68.53	66.57
Economic Sector							
Agriculture	5.61	4.96	5.28	5.91	5.93	5.97	2.02
Industry	8.26	6.54	7.59	8.01	8.75	10.35	0.99
Construction	0.47	0.24	0.41	0.34	0.65	0.69	0.03
Services	27.22	21.68	24.15	26.72	30.68	32.75	3.66
Professional Status							
Professional and Technicians	3.75	3.23	3.91	3.94	3.66	3.95	0.29
Managers	0.04	0.00	0.03	0.06	0.06	0.06	0.01
Administrative workers	6.04	4.28	5.61	5.59	6.56	8.07	0.47
Commerce	5.05	4.17	4.10	4.88	6.04	6.05	0.74
Other service workers	12.08	9.68	10.49	12.14	13.77	14.25	1.92
Agriculture	5.58	4.79	5.22	5.84	5.96	6.03	2.03
Manufacturing and Const.	9.04	7.25	8.08	8.52	9.97	11.34	1.26
Working Status							
Self—Employed	1.41	1.13	1.32	1.62	1.75	1.22	1.27
Employees							
public sector	6.26	4.89	5.79	5.91	6.95	7.70	0.45
private sect.	33.90	27.39	30.34	33.45	37.31	40.84	5.00

Reasons for leaving previous job							
End Contract	28.28	18.80	24.24	28.22	33.10	36.73	2.95
Laid Off	5.93	7.60	6.07	5.91	4.89	5.31	0.33
Quit	7.35	7.01	7.13	6.86	8.03	7.72	3.43
Registration at INEM							
Not Registered	12.66	20.77	14.36	10.78	8.94	8.94	95.59
Registered							
Receiving UB	15.09	10.56	12.08	14.74	17.33	20.68	1.00
No UB	72.25	68.67	73.57	74.48	73.73	70.38	3.40

Source: "Encuesta de la Poblacion Activa", INE.
Percentages in the searching/no searching population by groups (e.g. the group of age adds up to 100).

Table A3. Personal Characteristics.
Sample: people out of work who are actively searching for a job.

	Search Effort		Not Search Effort	
	Male (No %)	Female	Male (No %)	Female
Total	18167 (52.10)	16705 (47.90)	14462 (49.27)	14889 (50.73)
Restricted definition	5541 (47.17)	6206 (52.83)	27088 (51.62)	25388 (48.38)
Age				
16—24	6909 (38.03)	7835 (46.90)	5766 (39.87)	6700 (45.00)
25—34	5263 (28.97)	5682 (34.01)	3571 (24.69)	4623 (31.05)
35—49	3384 (18.63)	2565 (15.35)	2541 (17.57)	2693 (18.09)
50—64	2611 (14.37)	623 (3.73)	2584 (17.87)	873 (5.86)
Education				
No schooling	2662 (14.65)	996 (5.96)	2161 (14.94)	1123 (7.54)
Primary	11561 (63.64)	9422 (56.40)	9525 (65.86)	9550 (64.14)
Low Secondary	2210 (12.16)	3216 (19.25)	1635 (11.31)	2424 (16.28)
Upper Secondary	1031 (5.68)	1946 (11.65)	712 (4.92)	1136 (7.63)
Higher	703 (3.87)	1125 (6.73)	429 (2.97)	656 (4.41)
Family Status				
Head Household	6795 (37.40)	752 (4.50)	5350 (36.99)	652 (4.38)
Married	7193 (39.59)	5712 (34.19)	5581 (38.59)	6239 (41.90)
Children	5728 (31.53)	497 (2.98)	4347 (30.06)	437 (2.94)
Working Experience				
Never worked	4002 (22.03)	6932 (41.50)	3542 (24.49)	5924 (39.79)
Short duration	13116 (72.20)	12052 (72.15)	10422 (72.06)	10400 (69.85)
Economic Sector				
Agriculture	2533 (14.05)	942 (5.64)	1841 (12.73)	832 (5.59)
Industry	2275 (12.52)	1329 (7.96)	1800 (12.45)	1280 (8.60)
Construction	3112 (17.13)	90 (0.54)	2395 (16.56)	58 (0.39)
Services	3955 (21.77)	4660 (27.90)	2822 (19.51)	3941 (26.47)
Professional Status				
Professional and Technicians	439 (2.42)	713 (4.27)	240 (1.66)	471 (3.16)
Managers	56 (0.31)	5 (0.03)	51 (0.35)	9 (0.06)
Administrative workers	656 (3.61)	1169 (7.00)	425 (2.94)	738 (4.96)
Commerce	612 (3.37)	843 (5.05)	430 (2.97)	751 (5.04)
Other service workers	1137 (6.26)	2021 (12.10)	795 (5.50)	1794 (12.05)
Agriculture	2583 (14.22)	929 (5.56)	1839 (12.72)	833 (5.59)
Manufacturing and Const.	6412 (35.29)	1341 (8.03)	5078 (35.11)	1515 (10.18)
Working Status				
Self—Employed	500 (2.75)	223 (1.33)	403 (2.79)	223 (1.50)
Employees				

public sect.	1555 (8.56)	1177 (7.05)	1232 (8.52)	800 (5.37)
private sect.	9840 (54.16)	5621 (33.65)	7223 (49.94)	5088 (34.17)
Reasons for leaving previous job				
End Contract	8211 (45.20)	4858 (2908)	5967 (41.26)	4078 (27.39)
Laid Off	2175 (11.97)	996 (5.96)	1542 (10.66)	878 (5.90)
Quit	1509 (8.81)	1167 (6.99)	1349 (9.33)	1155 (7.76)
Registration at INEM				
Not Registered	776 (4.27)	1318 (7.89)	1919 (13.27)	2682 (18.01)
(restr. defn)	776 (14.00)	1318 (21.24)	1919 (7.08)	2682 (10.56)
Registered				
Receiving UB	5755 (31.68)	2498 (14.95)	4517 (31.23)	2269 (15.24)
	1323 (23.88)	710 (11.44)	8949 (33.04)	4057 (15.98)
No UB	11636 (64.05)	12889 (77.16)	8026 (55.50)	9938 (66.75)
	3442 (62.12)	4178 (67.32)	16220 (59.88)	18649 (73.46)

Source: "Encuesta de la Poblacion Activa", INE.

Table A4. Methods of Job Search.
Sample: people out of work who are actively searching for a job.

	Total	Registered at INEM		
		No	w/o UB	with UB.
Methods Used (Total)				
1 To establish yourself.	401	135	166	100
2 Name on Private Employment Agency.	210	28	118	64
3 Using newspapers	11641	1793	7811	2038
4 Personal Contacts	35725	6051	21837	7837
5 Taking Civil Service Examinations	2952	431	2197	324
6 Visiting Public Employment Office	56567	—	41825	14742
7 Other methods	1769	502	953	314
Mean number of search methods used	1.70	1.34	1.76	1.69

Appendix A

In the previous tables (Tables 1 to 3), we presented the results of estimating the model assuming a normal and a logistic distribution fuction. The estimated effects with the probit model are very similar to the ones with the logit (see note 7 in the main text).

To test whether one of the two models fits the data better than the other we performed a likelihood ratio–type test for non–nested hypotheses applying the method proposed by Vuong (1989).

The test statistic is as follows:

$$LRV = \frac{\hat{L}_{probit} - \hat{L}_{logit}}{\sqrt{\Sigma \hat{m}_i - \frac{1}{N}\left(\hat{L}_{probit} - \hat{L}_{logit}\right)^2}}$$

where $\hat{m}_i = \hat{l}_{(probit)} - \hat{l}_{(logit)}$,

$\hat{L}$ represents the maximised log–likelihood,

$\hat{l}_i$ represents the estimated log–likelihood for each observation,

and N is the sample size.

Under the null hypothesis that the two competing models fit the data equally well, LRV has a distribution N(0,1) in large samples. The test for model selection works in the following way. We choose the 5% significant level critical value from the standard normal distribution, then:

If $|LRV|<1.645$ we cannot discriminate between the two competing models given the data.

If $LRV<-1.645$ we reject the null in favour of the logit model which fits the data better.

If $LRV>1.645$ we reject the null in favour of the probit model which fits the data better.

The likelihood ratio test proposed by Vuong (1989) gives the following results:

(1) Table 1 Male Sample: LRV= –2.9272

Female Sample: LRV= 22.3627

(2) Table 2 Male Sample: LRV= 9.70

Female Sample: LRV= 4.4794

(3) Table 3 Male Sample: LRV= 3.3382

Female Sample: LRV= 3.754

Data Appendix.

Individual Characteristics dummies.

Source: Labour Force Surveys ("Encuesta de Poblacion Activa") from 1987 to 1991 (2nd quarters), provided by the "Instituto Nacional de Estadistica" (INE–National Statistics Office).

Searching for a job. The LFS provides three main questions to assess whether an individual is actively searching for a job when out of work. It follows Eurostat guidelines. Individuals are considered to be actively searching for a job if they choose the following answers: (1) I am without a job, available, and searching for a job; (2) I will be able to take up a job offered to me immediately (within no more than two weeks); (3) I am using one or several ways to look for a job (and these are reported).

Search effort. Individuals who are actively searching for a job also report the methods they are using. They report one or more methods (up to a maximum of three). We consider that those individuals who using report two or more methods to search for a job are making an effort in searching for a job.

Furthermore, one of the methods reported to look for a job is to register with the Public Employment Office (INEM). We also use a more restricted definition of search effort: to report using two or more methods in looking for a job, but none of them can be the registration to the INEM.

Educational level. We consider the following categories:

Illiterate and no schooling

Primary education

Low secondary education

Upper secondary education

Higher education

Household composition. The persons living in a household are asked about their relationship with the head of the household. Taking into account the organisation of the survey, we constructed a coding system to be able to assign to each head of household variables such as wife working the previous year, children, children younger than 16, and children working the previous year.

If the individual is not a head of household, we only know whether he or she is single or married.

Previous work experience. People in our sample, working age population not employed, are classified in two groups, those who have worked before and those who do not have any work experience.

For people who have worked before, the survey provides important information. First, using their economic sector at the time and following the two digit classification of the CNAE, we group them into agriculture, industry, construction and services. Second, using their professional status at the time, we classify them as either employees or self–employed, and the former as either wage earners in the public sector or in the private sector. Third, we group them by the length of time they have been out of work. Fourth, using their occupational or professional status and following the two digit classification of the CNAE, we group them into the seven standard professional levels. Finally, the survey provides information about the reasons why they left their previous job. Therefore, we group them by those whose contract expired, those who were laid off, and those who quit.

People registered at the Employment Office (INEM). Individuals answer a question stating

whether they are currently registered at the State Employment Office, and whether they are receiving any unemployment benefits.

In Table A1 we provide the sample frequencies of the individual variables.

Regional Economic Variables.

In addition, the LFS data set has been supplemented with information about local economic conditions. We assign to each individual his corresponding regional economic variables, according to his region of residence. The variables considered are:

Unemployment rate. Source: "Encuesta de Poblacion Activa" (EPA) and "Series Revisadas EPA (1977–87)", INE.

Vacancies. The vacancy rate is defined as the ratio of the region's vacancies to the region's labour force. Source: "Estadisticas de Empleo", "Instituto Nacional de Empleo" (INEM).

Cost of living. The cost–of–living variable is the Consumer Price Index (IPC). Source: INE.

Real wage. Average earnings. Source: "Contabilidad Regional de Espana" and "Encuesta de Salarios" (INE).

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