

## **JOB SEARCH BEHAVIOUR AND UNEMPLOYMENT BENEFITS IN SPAIN DURING THE PERIOD 1987-1991\***

Pablo ANTOLÍN

*Instituto de Análisis Económico, CSIC*

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

### **1. Introduction**

In this paper, we investigate the determinants and the extent of job search among non-working individuals registered at the Spanish Public Employment Office (INEM) during the recovery period (1987-1991). To do so, we use data drawn from the Spanish Labour Force Survey (EPA). We analyze the factors which affect the individual's decision to search for a job, and the factors which affect the effort or intensity of job search. The main purpose is to analyze the effect of unemployment benefits on the job search behaviour of non-workers. We also examine the effect of the duration of unemployment and whether there has been a change in the job search decision and in the job search effort in the Spanish labour market during the period under analysis.

Unemployment is the major problem in the recent evolution of the Spanish labour market. 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 who were unemployed were so for more than

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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 examine what determines the probability of getting a job or, its equivalent, what determines the probability of leaving the unemployment pool.

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, as well as on unemployment duration (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 by Alba and Freeman (1990), Cebrián et al. (1994), and, for the case of men, Andrés et al. (1989).

In this paper we are interested in 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.

Changes in the behaviour of the unemployed could result in an increase in equilibrium unemployment, which would help to explain why the unemployment rate in Spain persists at high levels. The prolonged period of high unemployment, the high proportion of long term unemployment, and the provision of unemployment benefits may have contributed to a reduction in the job search activity of those out of work. Furthermore, Antolín (1994), suggested that changes in the job search behaviour of the unemployed, proxied by the proportion of long term unemployment, may have occurred and may help to explain the outward shift of the unemployment-vacancy curve in Spain. Therefore, a study of the job search behaviour in the Spanish labour market seems necessary.

The provision of unemployment benefits can affect job search behaviour. Unemployment benefits can have two distinctive effects on job search. First, the reservation wage effect: the provision of unemployment benefits may raise the reservation wage and thus reduce the acceptance probability (see Lancaster and Nickell, 1980, and Narendranathan and Nickell, 1985, for these results for the U.K.). Second, the job offer effect. This second effect can work in the opposite direction from the reservation wage effect. The provision of unemployment benefits may raise the job search activity if job searchers use these benefits to subsidise their job search (Wadsworth, 1991). However, the job search effect can also reinforce the reservation wage effect

in the case that people receiving unemployment benefits decide to postpone their job search or slow down their job search effort until unemployment benefits are close to running out. Alba and Freeman, 1990, and Cebrián et al., 1994, found, in the case of Spain, that people wait until their unemployment benefits have been exhausted before they begin to search harder for a job. We will examine which direction the job search effect of the provision of unemployment benefits takes in Spanish.

The paper is organised as follows. In Section 2 we describe our framework of analysis and the data at hand. Our study of job search behaviour is twofold. First, in Section 3, we examine the determinants of the likelihood of searching for a job. Second, in Section 4, 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 job search and the intensity of search and to see whether there has been a change in either of them in the Spanish labour market in recent years. Throughout both sections we will examine important questions such as: whether the unemployment benefit system has affected job search behaviour, whether the provision of unemployment benefits reduces job search, and how the duration of unemployment affects job search behaviour. In Section 5 we present the main conclusions of our research.

## **2. 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) 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<sup>1</sup>.

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. Alba and Freeman (1990) and Cebrián et al. (1994) found that the provision of unemployment benefits has increased the duration of unemployment in Spain.

<sup>1</sup> According to the results they review, once an offer is received, workers almost always accept it (p. 139).

However, the provision of unemployment benefits also influences the probability of receiving a job offer. 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<sup>2</sup>. On the other hand, the provision of unemployment benefits could induce the individual to postpone or reduce his job search activity until they are close to exhaustion. These two effects have different directions, the former could counter-balance the reservation wage effect, while the latter reinforces the negative effect of unemployment benefits.

The probability  $\pi$  of becoming employed is the product of the probability  $\pi_o$  of receiving a job offer and the probability  $\pi_a$  that the non-working individual will accept the offer:

$$\pi = \pi_o \cdot \pi_a \quad [1]$$

Most empirical studies have focused on  $\pi_a$ . This paper is however concerned with the determinants of  $\pi_o$ . The job offer probability is a function of both the level of demand,  $\sigma$ , and the job search activity of job seekers,  $\psi$ :

$$\pi_o = \pi_o(\sigma, \psi), \quad \text{with} \quad (\partial \pi_o / \partial \sigma) > 0 \text{ and } (\partial \pi_o / \partial \psi) > 0 \quad [2]$$

We thus examine the job search activity of individuals seeking jobs. In the first stage we examine the factors which influence the individual's decision to search for a job. In the second stage, we 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 devoting a certain amount of time and money in searching for a job.

Let  $s_i^*$  be the difference between the expected utility of searching for a job and the utility of not searching at all, given observed economic variables (e.g. unemployment, vacancies, and wages), as well as other variables in the information set of individual  $i$ <sup>3</sup>. We specify  $s_i^*$  as follows:

$$s_i^* = \eta_o(X_i) + \eta_1(X_i) Z_i + \varepsilon_i \quad [3]$$

<sup>2</sup> Wadsworth, 1991, found that benefit claimants in the U.K. search more extensively than non-claimants, thereby increasing the rate of job offer arrival and, thus, increasing their probability of leaving the unemployment pool.

<sup>3</sup> We could also think of  $s_i^*$  as the difference between the expected utility of searching for a job using a certain level of effort and the utility of searching using less effort, given observed economic variables and other variables in the information set of the individual  $i$ .

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,  $\varepsilon_i$  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. Antolín and Bover (1993) showed the importance of interacting personal characteristics and local economic conditions in the case of regional migration decisions. These interactions will help us to disentangle certain effects of local economic conditions (see Section 3).

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:

$$\text{Prob}(s_i^* > 0) = \text{Prob}(\eta_0(X_i) + \eta_1(X_i)Z_i + \varepsilon_i > 0) = F(\eta_0(X_i) + \eta_1(X_i)Z_i) \quad [4]$$

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

The data used come from the «Encuesta de Población Activa» (EPA-the Spanish Labour Force Survey) conducted by the Instituto Nacional de Estadística (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 searching for a job may be lower at higher overall unemployment rates. However, we only have five years of data which coincide with the expansion phase of the cycle, so we cannot properly assess the impact of business cycle variables.

In our study an individual is considered to be searching for a job if his response to the question about his relationship with economic activity in the previous week that he was without a job, is that he is available for work, and is actively looking 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), and with the question about which methods he used to search for a job (the survey lists several alternative methods of searching for a job). In the Spanish 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 17 regions or «Comunidades Autónomas» 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).

Finally, given that registration at the INEM is a necessary condition to claim unemployment benefits and that it is one of the possible methods of searching for a job, in order to be able to examine the effect of unemployment benefits on job search behaviour and job search effort, it is necessary to restrict our sample to those individual registered at the INEM.

In the Data Appendix, we report detailed information about the construction of the variables used in this paper.

### 3. The likelihood of searching for a job

In Table 1 we present the results of the maximum likelihood estimation of equation (4) assuming a logistic and a normal distribution for  $F$ , for the male (columns 1 and 2) and the female (columns 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 = 1375.12 against  $X^2(36)$ )<sup>4</sup>. The estimated effects with the probit model are very similar to the ones with the logit<sup>5</sup>. We performed a likelihood ratio 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. The LR test suggests that the logit model fits the data better in the case of men, while the probit model seems better in the case of women (LRV = -10.52 for men, LRV = 2.12 for women). We also present in Table 2 the quantitative impact of changing selected factors, from a reference group, on the probability of searching for a job.

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 searching for a job<sup>6</sup>. Overall, women are less likely to search for jobs than their male counterparts. The effect of age on the probability of searching for a job is similar for men and women. This probability is higher for people aged 25 to 34, followed by prime age individuals (those aged 35 to 49), and is much lower for very young people, those aged 16 to 24, and people over 50. Very low levels of education, as well as levels of education higher than the standard individual

<sup>4</sup> The LR test for a sample split between male and female is also highly significant for each year sample (1987-1991).

<sup>5</sup> 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.

<sup>6</sup> The standard individual or default category, on which the analysis is presented and with which it is compared, is the following: single head 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, is not receiving unemployment benefits, and is living a hypothetical region.

(i.e., low secondary education), increase the probability of searching for a job. The effect of a low education level on the probability of searching for a job is particularly strong among men. On the other hand, the effect of higher levels of education is stronger among women: it increases their probability of searching by 15% (Table 2).

TABLE I  
Choice-Base Estimation of the Probability of Searching for a Job Among the Working Age Population not Employed and Registered at the INEM (1987-1991)

	Male Logit		Male Probit		Female Logit		Female Probit	
Constant	-1.7169	(1.50)	-0.9172	(1.47)	-4.8884	(4.03)	-2.6424	(3.94)
Aged 16 to 24	-0.5681	(6.54)	-0.2944	(6.83)	-0.2451	(5.06)	-0.1462	(5.18)
Aged 25 to 34	0.4517	(5.26)	0.2108	(5.12)	0.1162	(2.86)	0.0673	(2.82)
Aged 50 to 64	-1.2464	(16.40)	-0.6345	(16.44)	-0.6898	(12.04)	-0.4208	(12.16)
No education	0.8392	(11.69)	0.4692	(11.91)	0.3011	(4.91)	0.1717	(4.70)
Primary Education	1.0151	(21.37)	0.5509	(20.87)	0.5810	(16.09)	0.3454	(16.45)
Upper Secondary	0.7128	(8.39)	0.3839	(8.38)	0.7913	(13.30)	0.4497	(13.63)
Higher education	-0.2134	(2.39)	-0.0982	(1.94)	0.1966	(2.88)	0.1099	(2.81)
Working Spouse	0.2100	(1.77)	0.0857	(1.33)	-2.7085	(1.58)	-1.7994	(1.84)
Non-working spouse	0.0078	(0.08)	-0.0104	(0.18)	-3.3689	(1.98)	-2.1757	(2.24)
Not head of household, not married	0.2220	(1.99)	0.1418	(2.37)	0.3465	(3.64)	0.1909	(3.46)
Not head of household, married	0.6920	(4.43)	0.3653	(4.58)	-2.8284	(1.68)	-1.8666	(1.94)
Dependent Children	0.5727	(8.28)	0.3046	(8.37)	0.3014	(2.09)	0.1548	(1.91)
<b>Previous Work Experience</b>								
Ever work	-0.5722	(6.99)	-0.2858	(6.60)	-0.2935	(4.88)	-0.1695	(4.87)
Short Time out of work (<12 m)	0.1250	(2.27)	0.0607	(2.09)	0.0991	(2.10)	0.0534	(1.98)
Agriculture	0.1535	(0.78)	0.0854	(0.85)	-0.2253	(1.25)	-0.1164	(1.10)
Construction	0.5131	(7.04)	0.2499	(6.68)	0.2167	(0.94)	0.1238	(0.97)
Services	0.3053	(4.02)	0.1551	(3.88)	-0.2617	(3.27)	-0.1420	(3.11)
Employee public sector	-0.8504	(7.54)	-0.4388	(7.30)	-0.2436	(2.21)	-0.1497	(2.39)
Employee private sect.	-0.8124	(9.35)	-0.4439	(9.44)	-0.5007	(6.40)	-0.2963	(6.48)
Professional/Technic.	-0.0982	(0.68)	-0.0487	(0.64)	0.5774	(4.80)	0.2963	(4.46)
Managers	0.3704	(1.18)	0.1651	(0.99)	0.6188	(0.77)	0.3734	(0.84)
Administrative workers	0.0174	(0.16)	0.0136	(0.24)	0.5347	(5.88)	0.2834	(5.52)
Commerce workers	0.2122	(1.68)	0.1033	(1.58)	0.4994	(5.12)	0.2767	(4.98)
Other service workers	-0.2983	(3.02)	-0.1548	(3.00)	0.4389	(5.30)	0.2381	(5.01)
Agriculture workers	0.3482	(1.78)	0.1650	(1.65)	-0.2722	(1.55)	-0.1771	(1.72)
End Contract	1.4330	(20.89)	0.7564	(20.44)	0.8597	(14.45)	0.4926	(14.20)
Laid off	0.9453	(12.79)	0.5168	(12.64)	0.9104	(11.75)	0.5253	(11.80)
Job tenure (3+ years)	-0.1828	(3.09)	-0.0910	(2.99)	-0.0899	(1.75)	-0.0439	(1.50)
<b>Receiving Unemploy. Subsidies</b>								
	-0.5021	(10.55)	-0.2452	(9.85)	-0.3707	(9.55)	-0.2141	(9.43)

	Male Logit	Male Probit	Female Logit	Female Probit
<b>Local Economic Conditions</b>				
Unemployment Rate	0.2623 (0.82)	0.2164 (1.26)	-3.3823 (13.81)	-1.8683 (13.18)
Vacancy Rate	-7.9665 (0.45)	-6.8614 (0.70)	-38.839 (2.87)	-23.4063 (2.99)
Real Wage Rate	0.4089 (2.49)	0.2245 (2.51)	0.9543 (5.41)	0.5297 (5.43)
Real wage* married	—	—	0.3259 (1.31)	0.2197 (1.54)
D87	0.5880 (10.41)	0.3048 (9.96)	0.4410 (9.98)	0.2525 (9.82)
D88	0.7234 (12.80)	0.3849 (12.66)	0.7001 (16.32)	0.4036 (16.41)
D89	0.4305 (7.84)	0.2334 (7.78)	0.5616 (13.66)	0.3247 (13.64)
D90	0.1522 (2.88)	0.0827 (2.83)	0.1957 (5.12)	0.1142 (5.08)
<b>Association of Predicted prob and observed responses</b>				
Concordant	77.10%	77.10%	69.70%	66.40%
Tied	0.50%	0.50%	0.50%	0.70%
-Log Likelihood	11131.784	11184.986	17736.646	12426.439

Notes: t-ratios in brackets.

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, is not receiving unemployment benefits, and living in a hypothetical region.

Male subsample = 34,311. Job search frequency = 87.24%.

Female subsample = 35,831. Job search frequency = 77.01%.

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 in particular those who are married, are more likely to search for a job, followed by men who are heads of household, married, and their wife is working; while, men who are heads of household and are not married or those who are married but whose spouses do not work are less likely to search. 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 who have 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 the most likely to search for a job, followed by single head of household women, while non-heads of household and married women, together with married head of household women, with and without working spouse, are the least likely to search.

TABLE 2  
Predicted Probabilities (%)

	Searching for a Job		Searching for a Job with Effort	
	Male	Female	Male	Female
Reference Group <sup>1</sup>	74.0870	71.3534	23.9283	31.6767
Aged 25 to 34	81.7902	73.6683	20.9706	23.9085
Aged 50 to 64	45.1181	55.5471	14.2815	20.2103
Primary Education	88.7514	81.6618	19.0587	24.0873
Upper Secondary	85.3622	84.6043	NC <sup>2</sup>	36.5401
Not head of household, not married	78.1170	77.8871	NC	26.0148
Not head of household, married	85.1004	12.8331	NC	20.2297
No Previous Working Experience	61.7346	65.0014	NC	NC
Short time Out of previous Job (<12 m)	76.4138	73.3353	21.1935	27.9388
Employee public sector	54.9859	66.1279	NC	23.0871
The previous job contract expired	92.2977	85.4743	NC	NC
Receiving Unemployment Benefits	63.3764	63.2254	20.7625	NC
<b>Local Economic Conditions<sup>3</sup></b>				
Unemployment Rate	NC	39.7677	23.3523	30.9486
Vacancy Rate	NC	72.1334	23.2475	30.8523
Real wage Rate	75.4671	75.5162	35.7792	41.5060
<b>Years</b>				
D87	83.7331	79.4718	27.3031	NC
D88	85.4942	83.3786	19.3317	26.7371
D89	81.4724	81.3695	20.2604	31.5961
D90	76.9005	75.1812	22.1542	NC

Notes: <sup>1</sup>The reference group is an individual with the following characteristics:

Head of household, single, aged between 35 and 49, with low secondary education. The individual has previous working experience, and he has been out of work from previous job 12 or more months, previously self employed, in the industry sector, as a manufacturing worker, and he is out of work because he quit his previous job.

He is not receiving unemployment benefits, and is living in one hypothetical region. For the year of 1991.

<sup>2</sup> NC means that the predicted probability, with respect to the reference group, has not changed.

<sup>3</sup> The local economic conditions correspond to a region (Madrid), whose unemployment and vacancy rates in 1991 are lower than the hypothetical region, and its real wage is higher.

Let us now examine the effect of the individual's own *previous employment record*. Those individuals who have worked before are more likely to be actively searching for a job. In Table 2 we can observe that those individuals, both men and women, without work experience have a predicted probability of being actively searching for a job approximately 80% of the predicted probability of those individuals who have previous employment experience. 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 without a job for a long period of time (more than a year). Individuals who have worked either in the construction or the service sectors are more likely to search for a job than are workers in the industry or agriculture sectors. It is important to

note that for women, those with previous working experience in the service sector show a lower probability of searching for a job, while there is not a statistically significant difference between the other three economic sectors. 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, it does not seem to be relevant. For women, professional and technicians, administrative, commerce, and other service workers are the most likely to search for jobs, while managers, 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. We can see in Table 2 that those people who quit their previous job have less than half the probability of searching for a job than those individuals who did not quit. 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.

As regarding the *effect of Unemployment Benefits* on the probability of searching for a job, it should be noted that the individual has to be registered at the IMEN in order to be able to claim unemployment benefits in Spain. In order to examine the effect of unemployment benefits we, therefore, had to restrict our sample to those individuals registered at the INEM. We can conclude, from the results presented in Tables 1 and 2, that to receive unemployment benefits has a significant negative effect on the probability of searching for a job. The provision of unemployment benefits reduces the job search activity of both men and women.

Let us now examine the effect of the *economic conditions* in the individual's region of residence on the probability of searching for a job. For women, the effects of local economic conditions are significant and with the expected sign, while, for men, only the real wage has a significant effect on the probability of job search. Higher unemployment rates in the region of residence do not affect male job search activity, but higher unemployment rates substantially discourage the job search activity of women. Men may have to search irrespective of the prevailing economic conditions (probably due to family responsibilities, as referred to above). Higher vacancy rates reduces female job search activity<sup>7</sup>. The effect of local real wages on job search activity is as expected. Higher real wages increase the likelihood of searching for a job for both men and women. When we interact local real wages with marital status for women (Table 1, columns 3 and 4) we find that registered married and non-married women respond in the same way to higher real wages.

<sup>7</sup> 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 signalling that it is easier to get a job, but the contrary. It is a peculiar result that needs future research.

Overall, it appears that female job search activity is more responsive to economic conditions than is male job search activity. This is a standard finding in the related area of empirical labour supply: women's behaviour is more responsive to economic incentives than is men's behaviour.

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, despite an initial increase in 1988, as the year's dummies suggest. Therefore, we can conclude that the non-employed working age population registered at the INEM has been progressively less likely to search actively for a job throughout the recovery period (1987-1991)<sup>8</sup>.

#### **4. Job search effort**

We have examined so far the effect of personal characteristics, previous work experience, local economic conditions, and unemployment benefits on the probability of searching for a job. However, it is also important to examine the intensity and effort that each individual puts into job search. The probability of receiving a job offer would increase with job search effort. It is suggested in the literature (Devine and Kiefer, 1991) that the most appropriate measure of job 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) and some studies reviewed in Devine and Kiefer (1991) we proxy job search effort by the extensiveness of the job search.

The number of search methods used by 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 status regarding the perception of unemployment benefits, 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. Since, for the reasons explained above, we restrict our sample to those individuals registered at the INEM, we have removed registration at the INEM as a method of job search.

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 3. 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 males and

<sup>8</sup> We found the same, or even stronger, continuous decline in job search behaviour in Spain during this period when we do not restrict the sample to those registered at the INEM (Antolín, 1995).

females is highly significant (LR = 108.14 against  $X^2(36)$ ). 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 = 3.71 for men, LRV = 3.52 for women). However, both models present similar results about the different effects on job search effort.

TABLE 3  
Estimation of Job Search Effort of Job Seekers  
Registered at the INEM (1987-1991)

	Male Logit		Male Probit		Female Logit		Female Probit	
Constant	-18.73	(17.76)	-10.73	(18.06)	-13.94	(13.52)	-8.042	(13.78)
Aged 16 to 24	-0.0216	(0.34)	-0.0082	(0.23)	0.00002	(0.00)	-0.0030	(0.09)
Aged 25 to 34	0.1143	(2.07)	0.0641	(2.11)	0.0412	(0.74)	0.0212	(0.69)
Aged 50 to 64	-0.1701	(2.41)	-0.0904	(2.39)	-0.3890	(3.53)	-0.2080	(3.59)
No education	-0.6355	(8.13)	-0.3415	(8.15)	-0.6045	(5.93)	-0.3299	(6.14)
Primary Education	-0.2896	(6.03)	-0.1698	(6.15)	-0.3792	(8.92)	-0.2178	(8.96)
Upper Secondary	0.0963	(1.33)	0.0584	(1.38)	0.2167	(3.93)	0.1274	(3.93)
Higher education	0.2090	(2.34)	0.1294	(2.45)	0.1987	(2.81)	0.1207	(2.89)
Working Spouse	0.0634	(0.52)	0.0364	(0.54)	-0.3472	(0.91)	-0.1967	(0.92)
Non-working spouse	-0.0607	(0.53)	-0.0324	(0.52)	-0.4267	(0.86)	-0.2575	(0.95)
Not head of household, not married	0.0257	(0.23)	0.0190	(0.31)	-0.2765	(2.52)	-0.1543	(2.45)
Not head of household, married	0.0095	(0.07)	0.0066	(0.09)	-0.6033	(5.63)	-0.3358	(5.49)
Dependent Children	0.0675	(0.98)	0.0405	(1.09)	-0.1867	(1.24)	-0.1101	(1.28)
<b>Previous Work Experience</b>								
Ever work	0.0350	(0.48)	0.0182	(0.45)	0.0722	(0.99)	0.0415	(1.02)
Short Time out of work (<12 m)	-0.1567	(3.33)	-0.0892	(3.40)	-0.1788	(3.22)	-0.1009	(3.24)
Agriculture	-0.7330	(4.23)	-0.3814	(4.19)	-0.1631	(0.59)	-0.0660	(0.45)
Construction	-0.3291	(5.35)	-0.1750	(5.26)	-0.0108	(0.05)	-0.0097	(0.07)
Services	0.1283	(2.03)	0.0712	(2.00)	-0.1154	(1.15)	-0.0672	(1.21)
Employee public sector	-0.0762	(0.71)	-0.0434	(0.73)	-0.4347	(3.34)	-0.2336	(3.20)
Employee private sect.	0.0576	(0.66)	0.0339	(0.69)	-0.3086	(2.97)	-0.1639	(2.84)
Professional/Technic.	0.1017	(0.91)	0.0617	(0.95)	0.5618	(4.36)	0.3055	(4.24)
Managers	-0.1084	(0.39)	-0.0729	(0.46)	0.6444	(0.92)	0.3373	(0.81)
Administrative workers	0.3245	(3.80)	0.1915	(3.87)	0.7154	(6.64)	0.4012	(6.74)
Commerce workers	0.1228	(1.31)	0.0714	(1.33)	0.6287	(5.25)	0.3527	(5.34)
Other service workers	0.1447	(1.87)	0.0842	(1.91)	0.5511	(4.99)	0.3057	(5.09)
Agriculture workers	-0.1381	(0.83)	-0.0556	(0.63)	-0.3040	(1.07)	-0.1585	(1.07)
End Contract	-0.0431	(0.60)	-0.0295	(0.74)	-0.0332	(0.42)	-0.0203	(0.46)
Laid off	-0.0394	(0.49)	-0.0221	(0.49)	-0.0750	(0.76)	-0.0446	(0.82)
Job tenure (3 + years)	0.0829	(1.72)	0.0508	(1.91)	-0.0516	(0.88)	-0.0243	(0.74)
<b>Receiving Unemploy. Subsidies</b>								
	-0.1827	(4.35)	-0.1034	(4.52)	-0.0243	(0.46)	-0.0195	(0.67)

	Male Logit	Male Probit	Female Logit	Female Probit
<b>Local Economic Conditions</b>				
Unemployment Rate	1.0352 (3.43)	0.5059 (3.05)	1.0969 (3.60)	0.5705 (3.34)
Vacancy Rate	38.1331 (2.28)	25.254 (2.68)	38.6837 (2.43)	23.9566 (2.65)
Real Wage Rate	2.5523 (16.99)	1.4561 (17.17)	1.9003 (12.94)	1.0902 (13.09)
D87	0.1773 (3.40)	0.1027 (3.51)	0.0674 (1.25)	0.0443 (1.44)
D88	-0.2720 (5.08)	-0.1570 (5.32)	-0.2393 (4.61)	-0.1325 (4.55)
D89	-0.2135 (3.92)	-0.1170 (3.90)	-0.1703 (3.31)	-0.0909 (3.16)
D90	-0.1001 (1.86)	-0.0602 (2.01)	-0.0534 (1.07)	-0.0256 (0.91)
<b>Association of Predicted prob and observed responses</b>				
Concordant	66.4%	66.4%	63.7%	63.7%
Tied	0.7%	0.7%	0.8%	0.8%
-Log Likelihood	12426.439	12420.777	12379.452	12375.322

Notes: t-ratios in brackets.

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, is not receiving unemployment benefits, and living in a hypothetical region.

Male Subsample = 29,934. Job Search Effort frequency = 15.92%.

Female Subsample = 27,594. Job Search Effort frequency = 17.71%.

Before examining our results, there could be the concern that the regressions which investigate the intensity of job search are estimated using the non-random sub-sample of individuals classified as job searchers, which could give rise to a possible sample selection bias. We believe that this would be the case if our aim were to examine the factors which determine job search intensity in general, but we narrow our aim to examine the determinants of job search intensity among job searchers. In other words, we are interpreting the results presented in Table 3 in terms of a conditional model, where we condition on the fact of observed job search.

To see whether the results for an unconditional model would be very different, we investigated the problem of selectivity bias using the Heckman's  $\lambda$  method (Heckman, 1974, 1979) to test for sample selection bias. The results support the view that there is no sample selection bias in our chosen sample: the value of  $\lambda$  for the male subsample is  $-0.0003$  with a t-statistic of  $-0.508$ , and  $-0.0093$  for the female subsample with a t-statistic of  $-1.546$ .

Let us now examine the results presented in Tables 2 and 3. Regarding the direct effects of the *person's characteristics* on job search effort, we find that women appear to be more prone to search for jobs with more intensity than men. The probability of job search effort is higher for young males, aged 25 to 34, and is much lower for both women and men over 50. 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. Women who are not heads of household, either married or not, 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*, both men and women who have been out of work for a short period of time are less prone to search for a job with greater effort<sup>9</sup>. This may be due to the fact that they could be waiting for their unemployment benefits to run out. For those individuals with previous work experience, the previous economic sector does have a significant effect on men's likelihood of searching with effort, but has not effect on women's job search effort. Those men previously in the service sector have the highest probability of searching for a job with effort, and those in agriculture and construction have the lowest probability. Previous employment and professional status does not seem to affect much the likelihood of searching with greater effort among men. Among women, the previously self-employed show a higher likelihood of searching for a job with effort than do previous employees. Those women who were previously in administrative, commerce, professional or technician, and other service workers, show the highest likelihood of searching for a job with greater effort or intensity. Job search effort is not significantly affected by the reasons for which the previous job ended nor by the previous job tenure.

Let us now examine the effect of *local economic conditions*. For both women and men, all the economic variables are statistically significant. Higher unemployment raises the likelihood of job search effort, presumably reflecting that more difficult economic conditions require greater effort from those already 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 also increases the likelihood of greater job search effort.

What about the evolution of job search effort over the period under analysis? The year dummies suggest a U form in the time evolution of job search effort, with the first year 1987 and the last year 1991 showing the highest likelihood. The intermediate years may have been years where expectations of getting jobs were higher, so there was not such a strong need of searching for a job.

Finally, we focus on the effect of unemployment benefits on job search effort. To receive unemployment benefits reduces the job search effort of

<sup>9</sup> Alba and Freeman (1990) found that people wait until their unemployment benefits have been exhausted to search harder. Cebrián et al. (1993) found the same result, but they suggested that this happens after six months of unemployment. We substituted the variable «short time out of work (less than 12 months)» by two variables, one for people out of work for six months or less and another one for those individuals out of work for more than six months but less than 12 months. We can conclude that people out of work for less than six months are the less prone to search for a job with effort.

males registered at the INEM, but it does not have any significant effect on women's likelihood of searching with effort.

## 5. Conclusiones

In this paper we have examined the different factors which affect job search behaviour in Spain among individuals who are registered at the Public Employment Office (INEM) during the period 1987-1991, using data from the Spanish Labour Force Survey. The main conclusions of our analysis can be summarised as follows:

First, men seem to search for jobs more than women, but they do so less intensively. Women appear to respond more to economic conditions in deciding whether or not to search for jobs than do their male counterparts. This is a standard finding in the related area of labour supply (Heckman and MaCurdy, 1980, Hausman 1980, and Blundell et al., 1987).

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 in again reached its 1987 level in 1991.

Third, we find that unemployment benefits discourage job search: those individuals who are receiving unemployment benefits have a lower job search activity and use less effort when searching for a job than those individuals who are not receiving any unemployment benefits. Therefore, our results suggest that the individual may not use these benefits to subsidise their job search intensity. On the contrary, the provision of unemployment benefits gives people an incentive to postpone their job search activity, and reduces the job search intensity of those searching for a job. Therefore, the two distinctive effects of unemployment benefits on job search, the reservation wage effect and the job offer effect, seem to work in the same direction in the Spanish labour market.

Fourth, those who have been out of work for only a short period are more likely to search for jobs. Yet, the intensity or effort used in the job search (especially those out of work for six months or less) seems to be lower than the effort used in searching for a job by those who have been without a job for longer periods. This could be explained if 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, but this data set is not readily available<sup>10</sup>.

Finally, what are the consequences of the findings provided in this paper for alternative explanations of the persistence of unemployment in Spain? The results show that job search has actually fallen, which is consistent with the

<sup>10</sup> However, Cebrián *et al.* (1994) using this data set, found that the hazard function or the conditional probability of leaving unemployment jumps after six months.

persistence of unemployment at high rates. However, job search intensity declined initially to return in 1991 to its 1987 level, thus an increase in persistence led by lower job search intensity is not supported by our results. But the fact that the job search effort of job seekers did not improve during a period of strong economic and employment growth does not contradict the persistence of unemployment in Spain. There is also the argument that people unemployed for a long period of time search less and with less intensity (i.e., the duration led hysteresis argument). Our results do not support this argument either. People who have been out of work for long spells of time, a year or more, seem to search harder than people who have been out of work for a short period of time. The latter group of people may be receiving unemployment benefits, while for people out of work for long periods of time these benefits may have run out already. The fact that people out of work for long periods of time search for a job more intensively does not necessarily mean that they search more efficiently. Moreover, they could have some characteristics which make them less attractive to employers and, therefore, they have to search harder to find a job.

## Data Appendix

### *Individual Characteristics dummies*

*Source:* Labour Force Surveys («Encuesta de Población Activa», EPA) from 1987 to 1991 (2nd quarters), provided by the «Instituto Nacional de Estadística» (INE-National Statistics Office).

*Searching for a job:* The INE, following ILO and Eurostat guidelines, uses three main questions to assess whether an individual is actively searching for a job when out of work. These three questions are:

D.1. What was your situation with respect to economic activity last week? (Variable SILA).

G.3. Which methods did you use to look for job? (Variable FORBU).

G.5. If you were now offered a job or if the conditions for which you do not work as a self-employed individual changed, could you start to work immediately? (Variable DISP).

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 (SILA); 2) I will be able to take up a job offered to me immediately, within no more than two weeks (DISP); 3) I am using one or several ways to look for a job, and these are reported (FORBU).

*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 could consider that those individuals who report using two or more methods to search for a job are making an effort in searching for a job. However, one of the methods reported to look for a job

is to register with the Public Employment Office (INEM). We then use a more restricted definition of search effort: to report using two or more methods in looking for a job, excluding registration at 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, children, children younger than 16, and children working ».

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

*Previous work experience.* The 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 Public Employment Office or not, and whether they are receiving any unemployment benefits:

I.1. What is your situation with respect to the Public Employment Office? (Variable OFEMP).

This question is not the same one used as a criterium selection to determine who is actively searching for a job (i.e., «name the methods used to search for a job»). That is why not everyone registered at the INEM is actively searching for a job (see Antolín, 1995).

With this distinction clear it is easy to see that not everyone who is registered at the INEM (question I.1. above) is actively searching for a job, following the definition used by the INE in the EPA (questions D.1., G.3., and G.5. above). Some people are registered at the INEM, of some of whom are getting unemployment benefits and some of whom are not, but they are not actively searching for a job. For example, they can answer that they were not working, available, but they were not searching for a job (SILA = 7) or other situation (SILA = 8). Or they can also answer that they were not working, available, and were searching for a job (SILA = 6), but they could not start to work immediately (DISP  $\neq$  1). Finally, they could answer that they were not working, available, and searching for a job (SILA = 6), they could start to work immediately (DISP = 1), but they have not used any method yet (FORBU = 8).

### *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 Población 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: «Estadísticas 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 España» and «Encuesta de Salarios» (INE).

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## Resumen

Este trabajo examina el comportamiento en la búsqueda de trabajo de los individuos en edad de trabajar, que no están trabajando, inscritos en las oficinas del Instituto Nacional de Empleo (INEM), y la intensidad en la búsqueda de trabajo de aquellos inscritos que buscan trabajo activamente. Para ello se utilizan secciones cruzadas conjuntas de la EPA, desde 1987 hasta 1991. El propósito es examinar si durante este período ha habido cambios en su comportamiento, tanto en la decisión de buscar trabajo como en la intensidad con que éste se busca. También se estudian los posibles efectos que los subsidios de desempleo han podido tener en dicho comportamiento.