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**Search on the job in European countries: evidence based
on the European Community Household Panel Survey
(ECHP)**

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1. Introduction¹

In this paper I present evidence about the activity of job search while employed in selected EU countries, during the period 1994-2001.

This is a particularly interesting time span, since in 1994 the OECD published the set of recommendations universally known as the OECD Jobs Strategy, aiming to reduce unemployment, raise employment and increase prosperity (OECD, 1994). After the Jobs Strategy, many countries have undertaken more or less deep reform of their labour market, in some way coherent with the countries specific recommendations issued by the Economic and Development Review Committee ERDC during the 1995-97. The most of the recommended policies aimed to increase the flexibility of the labour market, with an expected impact on workers' mobility, hence, also on "on the job search".

The aim of this paper is twofold. On the one hand, I provide descriptive evidence about search on the job across European countries, and focus on its main determinants and evolution. In a second step I investigate whether looking for a work while continuing the current job offers higher wages or larger opportunity of wage increase compared to being employed and not engaged in job search.

In a typical frictional labour market, search on the job is the premise of job to job mobility, aiming to find a suitable and better match than the present one, allowing a wage gain. In this perspective, employed search would be mostly reactive to the economic activity and negatively related to the unemployment rate (Pissarides, 1994): Moreover, it is also expected to find many job seekers among new job holders and young workers (Hall, 1982), since a very high turnover characterizes the beginning of the job history of each individual.

However, the institutions of the labour market can impinge on the size of search on the job, in several aspects. First, affecting the choice between employed and unemployed search. Actually, search on the job might be a second best option for people who cannot afford high reservation wages compared to those deciding to do full time search (unemployed). Second, influencing the size of bad job positions, i.e. short time jobs; for instance, Boeri (1999) observes that, in the presence of a segmented labour market with insider protection coexisting with short term jobs, employed job search may be very high among those in the weak tier of the labour market. Last but not least, the institutional settings of the labour market concur to determine the degree of flexibility and, therefore, the opportunity of "job shopping".

The evidence I propose confirms the multiple faces of employed job search, suggesting that search on the job has different motivation in labour market with different degree of flexibility and perceived job security. As to wage mobility, the evidence is less clear, and it suggests that, to some extent, on the job search may have a positive interaction with wage mobility, whereas job to job mobility is always a source of wage increase.

The paper is organized as follow. In section 2 I briefly sketch the theory of job search and the motivation of the paper, while the two subsequent sections provide descriptive evidence. In particular, in section 3 I describe the data set and provide evidence about

¹ This paper is based on research carried out during my visiting at the ISER, University of Essex, with financial support of the European Community Research Infrastructure Action under the FP6 "Structuring the European Research Area" Programme. I received very helpful support and comments from Chetti Nicoletti, Simonetta Longhi and Marco Francesconi, and participants to the seminar at the Dept. of Economics of the University of Linz. All remaining errors are mine only responsibility.

the main features of the search on the job in some EU countries, focusing the attention on one of the main reason for searching on the job, that is the dissatisfaction with job's remuneration. Starting from the descriptive evidence available for EU countries, in Section 4 I provide some estimates aiming to explain the attitude toward job search among employed workers in three selected EU countries, Netherlands, Italy and Portugal. Section 5 focuses on wage increase in the presence of search on the job in the above listed countries, and section 6 concludes the article.

2. Literature and motivation

The study of the labour market under the perspective of the search theory can be traced back to the seventies', with the formalizations of McCall (1970) and Mortensen (1970). The basic model described the optimal strategy of a worker looking for a job, consisting simply of choosing the reservation wage. The distinctive feature of this literature, compared to neoclassical analysis, is the explicit consideration of the existence of frictions in the labour market, which imply that searching is a costly activity both for workers and for employers. Therefore, workers face a triple choice: accepting a job offer (employed), looking for a job (unemployed), being out of the market (inactive). By contrast, in the neoclassical interpretation of the labour market workers could only be employed or inactive.

In a first stage, the literature about the search theory adopted a partial equilibrium approach, that did not account for the demand side of the labour market, subsequently included in the so called structural approach.² Diamond (1971) highlighted that in presence of optimizing wage policies from the firm side, the labour market equilibrium would command a distribution of wage degenerating to a single point. However, two branches of research coped with this issue: workers' heterogeneity (Albrecht and Axell, 1984); search on the job (Burdett, 1978; Burdett and Mortensen, 1998).

Indeed, in the original interpretation of the labour market frictions, no attention was paid to the possibility that employed workers may also be job seekers. In other terms, this very simple framework did not allow for transition from one job to another. This restriction was not consistent with the observed data, suggesting that many workers used to change jobs without suffering any spell of unemployment (Mattila, 1974).

The strategy of job search while employed originate from two alternative circumstances:

1) the choice of the worker, **not yet employed**, between full time and part time search, i.e. the alternative between *unemployment* and a *bad position*. The decision to accept a bad match can be motivated by different evaluations: a second best option for people who cannot afford high reservation wages compared to those deciding to do full time search; an optimal strategy taking into account the different job offer when employed and unemployed.

2) the choice of the worker, **already engaged in a job position**, between looking or not for a different job, i.e. the alternative discriminating between *bad* and *good matches*. This decision, not necessarily consequent to the first one, is mostly related to career improvement.

² This classification applies also in the empirical analysis, where two different branches have to be distinguished: structural-form and reduced-form approaches. The former aims to estimate the structural equations of the theoretical model, to test the adequacy of the theory. The latter is limited to the estimate of the hazard function.

Both the choices are investigated in Burdett (1978), one of the first papers allowing for search on the job. The first listed alternative identifies a threshold wage, Z (in some sense, the true reservation wage), whereas the second one characterizes the final reservation wage, y . Formally, Burdett (1978) suggests that workers would prefer search on the job rather than unemployment each time the following wage inequality applies:

$$Z > u - c_1 + c_2$$

where u is the revenue when unemployed, c_1 and c_2 represent the costs of search, respectively, when unemployed and employed. More generally, search on the job represents the optimal strategy for a worker each time the offered wage is larger than Z but lower than the reservation wage y that equates the payoffs of working with or without searching. Therefore, the larger the unemployment insurance, u , the higher the basic reservation wage will be. Similarly, if search on the job is very costly, i.e. c_2 is high, workers are more likely to stay unemployed rather than accepting a job and continuing to look for another one.

The comparison between employed and unemployed search is importantly affected by the job offer rate. In a partial equilibrium approach (Mortensen, 1986), search-on-the-job allows to consider endogenous turnover, affecting the optimal strategy of unemployed individuals, lowering their reservation wage. In this perspective, if offers arrive more frequently while employed, individuals may accept a wage lower than their revenues while unemployed. Blau (1992) analyses job search behaviour between employed and unemployed workers, and his evidence suggests that, since most of the search on the job is not a continuation of unemployed search, and given that job offers are more frequent for employed searchers, spending some time on the job may be necessary for removing any stigma associated with unemployment.

However, search-on-the-job might be a physiological step to achieve a career improvement. This remark introduces the second stage of the worker's strategy, i.e. the pattern from a bad to a good match, which is more adequately explained by a second stream of literature, the equilibrium search approach (Mortensen and Pissarides, 1999), a class of models with endogenous wage. In this approach, search-on-the-job, together with shirking and workers' heterogeneity, is an important extension in order to explain wage dispersion and wage mobility, as shown in van der Berg (1992). Moreover, some of the wage increase experienced "on the job" may result from on the job search and between-firms competition, as stated in Cahuc et al. (2004).

All the above quoted studies deem a wage rise as an expected outcome of job search while employed, though Gottschalk and Maloney (1985) show that this strategy may be more or less successful in affecting the probability to find a new and better job compared to the present one. Also, Burgess and Turon (2003) show that the expected return of employed search is a wage increase, though it is not possible to exclude an effective wage drop.

A different perspective, focusing on institutions is taken by Boeri (1999), who claims that in countries with strict employment security regulation there is a large number of workers on short term jobs, looking for a new job. According to the author, there is a distinction between genuine employed job seekers, "pulled" by the perspective of better jobs, and "pushed" employed job seekers, compelled to look for a job by the short time nature of their present one. Though the reference is to a specific situation,

i.e. the strict regulation of labour market, this claiming emphasizes that there can exist different motivations exhorting workers to search on the job.

This brief survey aimed to highlight that circumstances determining the size of workers engaged in search-on-the-job may be variegated. Few empirical studies evaluate the determinants of the job search among workers already employed (Black, 1981; Pissarides and Wadsworth, 1994; Keith and McWilliams, 1999), and none compares results for different countries. This is an issue worth to be investigated, given that the comparison across European countries, accounting for different institutional frameworks, may add important insights in explaining the attitude toward job search.

These issues will be addressed in the following sections of the paper.

3. The data set and the descriptive evidence

3.1 The sample

The evidence provided in this paper is based on the European Community Household Panel Survey (ECHP). The ECHP is a harmonised cross-national longitudinal survey, run from 1994 to 2001, focusing on household income and living conditions, including items on employment characteristics.³

Given the focus of the present analysis, for each country I select employed workers, aged 16-60, answering to the question PS001 “Looking for a job”. This apparently simple definition implies two necessary remarks. First, ECHP provides two different classification of labour force:

- a general one, related to the ILO classification of the labour force (PE003)
- a restricted one, which further classifies the ILO employed according to their status in employment (PE004)

In the proceeding of the analysis I will refer mainly to the restricted category of employment, excluding from the sample self-employed and unpaid family workers.

The second remark concern the countries participating to the sample, since in Luxembourg, Germany and UK, respondents who are employed are not asked about their search effort for a new job.⁴ Consequently, I can't provide any evidence for the three listed countries.

3.2 Some evidence in EU

In this section I present some evidence about the search on the job, using, for each European country, a pooled sample. The evidence here depicted refers to employed worker in the age group 16-60, excluding self employed and family workers.

The percentage of employed workers declaring to be looking for a job is shown in Table 1.

³ In the first wave (1994) a sample of over 60,000 households were interviewed across 12 member states (Belgium, Denmark, Germany, Greece, Spain, France, Italy, Ireland, Luxembourg, the Netherlands, Portugal, the United-Kingdom). Austria joined the panel in 1995 and Finland joined 1996. From 1997 Sweden provides cross-sectional data derived from its National Survey on Living conditions.

⁴ Starting from wave 4 (1997) the three quoted countries provided data derived from their national survey.

Table 1 Employed looking for a job (% of total employees)

	DE	NE	BE	FR	IR	IT	GR	ES	PO	AU	FI
Search on the job	12.49	21.24	9.72	8.2	12.07	9.93	12.49	11.4	3.55	4.74	11.89
temporary employment [^]	10.4	12.5	7.44	13.5	7.7	8.4	11.3	33.4	15.8	7.4	17
Part time employment [^]	21.6	39.0	16.2	14.5	14.2	7.2	4.9	7.7	9.9	15.2	11.7

[^] average 1994-2001

Netherlands and UK are the countries where the largest share of search on the job is registered, respectively, 21 and 13% of total workers (*high* search-on-the-job countries). By contrast, in Portugal and Austria a very little share, ranging between 3 and 5%, of employed workers is involved in job search activities (*low* search-on-the-job countries). All the remaining countries are in an intermediate condition, with search on the job activities pertaining to about a 10% of total employed workers (*mean* search-on-the-job countries).

The reasons for these very different digits are worth to be further investigated. A first one could be related to a physiological explanation, i.e. a short term expiring date for the contract. A possible indicator could be the widespread of temporary employment in each country, as approximated by the dimension of temporary employment, which is also depicted in Table 1. Nonetheless, looking at available data (source Eurostat), it emerges that the country expressing the highest share of temporary employment in the period 1995-2000 is Spain (33%), followed by Finland (17%) and Portugal (about 16%), while in Netherlands less than 13% of total employment was accounted for by temporary jobs. Indeed, the correlation index between search on the job and temporary employment is almost zero (-0.04). By contrast, if we look at the correlation between part time employment, and the size of workers looking for a job, we find a positive and significant correlation index (0.59).

3.2.1 Earnings and satisfaction

A strong homogeneity is registered among countries when considering the distribution of the search on the job in the different wage deciles: Figure 1 clearly shows that search on the job tends to decrease with job earnings.

This is consistent with the basics of the analytical framework adopted in Burdett (1978): as long as the current wage increases, we expect to find lower differences between real wages and the final reservation wage (y), and, consequently, fewer searches on the job. However, this also confirms dual labour market theories (Doeringer and Priore, 1971): bad job are also high turn over jobs.

In particular, Italy, Greece and Spain are characterized by huge differences between the bottom deciles and all the other ones.

Figure 1: employed search and wage deciles in European countries



Digits shown in Table 2 compare the search behaviour of employed workers controlling for their level of satisfaction with job earnings.⁵ The table answers two questions, respectively in the first and in the second row: i) how many of those claiming to be dissatisfied with earnings look for a job and ii) how many of those looking for a job are also dissatisfied with earnings.

Table 2: search on the job among employed workers (more than 15 hours a week) not satisfied with their earnings in selected EU countries, pooled sample

	den	neth	b	fr	ire	it	gr	sp	po	a	fin
Dissatisfied with earnings and Seeking	19.92	38.83	16.17	12.73	22.42	13.77	15.88	14.04	5.08	10.08	19.72
Seeking & dissatisfied / Total Seeking	38.12	31.61	54.77	64.68	53.98	77.97	82.59	76.13	84.05	48.02	47.12

Even though Table 2 suggests that the low satisfaction about earnings pushes a quite large percentage of workers to look for a different job (first row), it also reveals that in some countries (Denmark, Netherlands, in particular, but also Austria and Finland) only a residual part of the search on the job is accounted for by low earnings' satisfaction.⁶ It is interesting to notice that where few employed workers search on the job, they also are the most dissatisfied with their earnings, and conversely when search on the job is very frequent it is not necessarily motivated by earnings dissatisfaction.

This preliminary evidence suggests that search-on-the-job has some characteristics similar across countries, but also highlights large differences, worth to better investigated, which the subject of the next section.

⁵ We consider respondents to question PE031 with a level of satisfaction classified as 1, 2 or 3; in ECHP only employed working 15 hours or more a week are asked the respective question. We are aware that the range of relative satisfaction may be different among countries, as well stressed recently by Nicoletti (2006).

⁶ Notice that digits in the first row digits of Table 2 are always larger than those shown in Table 1.

4. The determinants of search on the job

In this section I test the main determinants of search on the job in Europe; in order to simplify the analysis, I choose three European countries with different size of search on the job, as shown in the previous section: Netherlands, and Portugal, that are the two extremes of distribution, and Italy, where employed search in all the examined waves is similar to the registered average in the remaining countries.

The estimates are based on the ECHP, and are realized, using a separate sample of employed workers (PE003==1,2) for each of the three considered countries, controlling for three age groups: 17-27; 27-37; 37-47.

The estimates are run using the logistic estimation, controlling for fixed effect; unfortunately, this doesn't allow me to control for sex.

The selected regressors refer to three main groups of variables: *demographic* (marital status, age, education), *job related* (wage, job tenure, hours worked, work experience, the involvement in formal training program before starting the current job, the type of contract, the sector of activity of the employer, the principal activity performed in the current occupation); *satisfaction related* (workers claiming to have more skills than those required by the present job; workers declaring a low level of satisfaction with several different job characteristics⁷). Business cycle effects are captured by the inclusion of calendar time (year dummies) as a covariate.

In a first step I run the regression keeping all the three groups of explanatory variables, whereas in a second stage I exclude the last one, since the satisfaction related variables may be strongly correlated with some of the job characteristics. In particular, the low satisfaction may be more widespread among those workers in bad job positions, such as temporary and part time jobs; this problem of multicollinearity might generate less reliable estimates for those coefficients "job related" in terms of their large standard errors.

Individual related regressors

None of these explanatory variables is significant in the estimated regression, with the single exception of education, which affects search on the job in Italy. In fact, in this country, employed workers with lower education achievement are less likely to be looking for a new job, especially when considering older groups of workers.

Job related regressors

Net wage has a significant explanatory power in Italy and, though only for the youngest group, in Portugal, reducing the involvement in job search; by contrast, in Netherlands there is no evidence of any effect on search on the job.

An opposite situation occurs when looking at the effect of job tenure, which increases search on the job in Netherlands, though with a decreasing intensity, whereas it plays no role in the two remaining countries.

Again, we find evidence of a different attitude across countries when considering explanatory variables accounting for job stability, such as controlling for employment in permanent or full time positions, or in the public sector. All of these variables have some explanatory power in predicting (reducing) search on the job in Italy and Portugal, whereas they are not significant for Netherlands. Interestingly enough, controlling for the fact that workers received formal training for the current job, we observe that it reduces search on the job among older workers in Portugal.

Job satisfaction

⁷ The level of satisfaction with the present job characteristics is asked in questions PE031-36. The investigated dimensions are: job earnings, job security; type of work; number of working hours; working times; working conditions; distance to job.

Overall, explanatory variables accounting for several dimension of job satisfaction are very important in explaining search on the job in all the countries, and for all the age groups: workers claiming to have more skill than those required by the present job, and to be dissatisfied with their jobs (in terms of all the investigated dimensions) are more likely to be looking for a new job.

This result is not surprising, since employed workers look for a different job when the job match is not the best one they can achieve. What is more interesting is the different contribution that satisfaction related variables provide to explain employed search across countries.

In particular, it is worth to notice that in Netherlands all the job satisfaction dimensions, with the single exception of working conditions, are always significant for all the age groups. The remaining regressors that add to explain job search relate to specific and general job expertises. At the opposite extreme we find Portugal, where the only job satisfaction dimension always significant is the one related to job security, and, consistently, we find that in this country all the explanatory variables related to job security, i.e. permanent, full time and public sector positions, reduce search on the job. In an intermediate situation we find Italy, where estimated coefficients for dissatisfaction with earnings and job security are always statistically significant, whereas the other dimensions of job satisfaction have a less strong explanatory power across the different age groups.

When running the regression dropping the job satisfaction explanatory variables, the results for the remaining regressors do not change remarkably, neither with reference to the significant ones, nor in relation to the sign and intensity of the estimated coefficients. The main consequence of dropping the satisfaction related regressors is a considerable reduction in the goodness of fit of the estimated model, since a large reduction in the pseudo R squared occurs.

Therefore, data suggest that differences in average search on the job registered across European countries are a consequence of the different role played by employed search, which has different determinants.

The main characteristics of search on the job across countries can be summarized as follows:

1. Netherlands: it is strongly related to job satisfaction; consistently, when tenure rises, employees tend to do more search on the job in order to find a better match. This leaves to foresight a flexible labour market, where search on the job is mainly related to career advancing (more adequate job matching);
2. Italy: only some of the job satisfaction dimensions help to explain search on the job, and they are mainly related to basic dimension, i.e. earnings and job security. Search on the job seems to be strongly connected to bad job positions, involving low wage, low time workers, as well as temporary positions;
3. Portugal: job security satisfaction is the only dimension affecting search on the job for all the age groups; it seems that in this country the prevailing motivation pushing employed workers to search for a different job is related to job security, since both permanent and full time job holders are considerably less likely to be involved in job search, as well as public sector employees.

These differences are certainly traceable back to the institutional features of the local labour markets, more rigid in Portugal and Italy compared to the Netherlands.

Though at a first glance it may seem that a large share of employed search would imply many bad matches, the ECHP data also shows that the more flexible the labour market is, the more on the job search. These two remarks must be interpreted taking into account the two alternative motivations explaining search on the job discussed in Section 2: a second best strategy and a career improving opportunity.

Moreover, adopting the terminology by Boeri (1999), it seems that the estimated regressions suggest that where the market is less rigid, the prevailing motivations for employed search are consistent with the so called “pulled” search, or voluntary quits. Conversely, in a more rigid labour market employed search seems to be “pushed” or driven by the necessity to substitute a bad/temporary job.

In this sense, the evaluation about search on the job is less straightforward: on the one hand it witnesses a mismatch between workers and job positions; on the other hand it seems to be a signal of a flexible labour market.

This evidence somehow counterintuitive might be better appreciated considering the data commented by Auer (2005), displaying poor job quality and low perceived employment security in those countries, such as Portugal and Italy, with more rigid labour market. The paradox of low perceived security in those markets with higher average tenure (i.e. Italy and Portugal versus Netherlands) seems to suggest that the worker is locked in a bad quality job, with few chances of upward mobility. These remarks are consistent with the evidence found about the intensity and the motivations of search on job.

However, to better appreciate the claiming about the “quality” of search-on-the-job, it is useful to investigate its interaction with wage dynamics, which is the subject of the next section.

Table 3: determinants of search on the job, by country and age-group.

Variable	ITALY			NETHERLANDS			PORTUGAL		
	AGE 17-27	AGE 27-37	AGE 37-47	AGE 17-27	AGE 27-37	AGE 37-47	AGE 17-27	AGE 27-37	AGE 37-47
married	-0.195	0.295	0.391	0.000	-0.197	-0.304	-0.078	-0.422	-0.032
age	1.365	0.103	-11.496	-3.391	-0.594	0.457	-0.053	12.212	1.820
mededu	0.152	-1.5955466*	-2.8441057*	0.092	0.189	-0.300	-0.044	0.251	-1.255
lowedu	-0.277	-1.510	-2.9125147*	-0.012	0.144	-0.013	0.303	-2.321	-1.609
rhw	-.1703***	-.06507057*	-0.049	0.008	0.000	-0.001	-.00224467*	-0.001	-0.001
Mtenure	0.023	0.006	0.007	.06505423***	.03306603***	.02002474***	0.012	0.010	-0.012
weekhours	-.065***	-.03509587*	-0.016	-0.025	-0.020	-0.016	-0.013	-0.028	-0.025
workexp	-0.296	-0.094	12.352	2.844	-.26395502*	0.093	0.226	-10.351	-2.169
age2	-.03119273*	-0.005	-.0148681**	0.006	0.010	-.00764845*	-0.002	-0.032	-0.003
Mtenure2	0.000	0.000	0.000	-.00037563**	-.00010646***	-.00002492*	0.000	0.000	0.000
workexp2	0.017	.00809522*	.00681111*	0.005	.00990493**	0.001	-0.011	-0.002	0.007
formtrain	0.122	-0.296	0.251				0.211	0.376	1.2179098*
permanent	-.67643841**	-1.04***	-.915***	-0.115	-0.047	-0.136	-.59526808*	-1.740***	-0.703
Dissatisfied with:									
earnings	.52650523**	.30317069*	1.1248005***	.79749427**	.70063571***	1.0322742***	.83025513***	0.717	.83389814*
security	.75126058***	.53582258***	.47572284*	1.4968002***	1.6998638***	1.4923473***	.97197738***	1.7334472***	.9294406**
type of work	0.061	-0.012	.77486653***	0.302	.32254151*	.22899508*	-0.325	1.3646448**	-0.080
n. of working hours	.632274**	0.055	-.942***	.74642011*	.65205138***	.542***	0.272	0.351	-0.569
working times	0.298	.57579253***	.4364628**	1.2972028***	.93964358***	.90005184***	.88762128**	0.125	1.2133672**
working conditions	-0.047	0.041	-0.122	0.111	-0.049	.43197806***	-0.192	-.99242871*	-0.347
skilledman~g	.84082163***	.65246377***	0.313	1.1182901***	.46782218***	.3896022***	.66082446**	1.3045495**	0.295
fulltime	-0.755	-0.171	-0.506	-0.071	-0.260	-0.347	-2.0056059**	-1.886	-2.6364174*
pubsect	-0.285	-0.210	-0.814	-0.148	-0.083	0.169	-0.549	-2.676***	1.641
N	1192	1842	1664	1252	3455	4985	938	484	535
r2_p	0.26448857	0.13042061	0.17924495	0.33326975	0.23061486	0.20492566	0.25499957	0.411754	0.30397989
ll_0	-428.52918	-675.18085	-604.64973	-465.6544	-1312.8626	-1886.2346	-338.13205	-168.61418	-184.89897
Pi value chi2 test	3.44E-31	7.80E-22	2.53E-29	7.72E-48	9.62E-108	1.36E-142	3.58E-21	2.87E-15	7.11E-11

5. Search on the job and wage mobility

In this section I exhibit some evidence on the dynamic interaction between lagged search on the job and current earnings, referring to both current remuneration and wage increase. In both cases, I control for people who did change their job compared to those that stay in the same job position, approximating the size of movers with those declaring, in the current wave, a different year of the present job start (question PE011) and those with job tenure lower than 12 months.

The equation estimated is a standard wage equation (Topel, 1991), with the inclusion of an additional explanatory variable controlling for past search on the job by the individual:

$$y_{it} = EX_{it}\beta_1 + T_{it}\beta_2 + (EX_{it})^2\beta_3 + (T_{it})^2\beta_4 + S_{it-1}\beta_5 + \varepsilon_{it} \quad (1)$$

where y_{it} denotes the log of real hourly wage for individual i at time t , EX_{it} is total labor market experience, T_{it} is current job tenure, and S_{it-1} is a dummy variable equal to 1 if the individual i was employed and looking for a job a time $t-1$.⁸ Finally, the error term includes the individual specific effect that may be correlated with the regressors. The method chosen to estimate this wage equation is the fixed effect model, which allows to control for unobserved heterogeneity and the correlations occurring between the unobserved individual effect and the explanatory variables.

The empirical estimates control for other observables that are: age, education, the weekly worked hours, the type of employment (permanent, public), the main activity of the employer (sector), and the principal activity performed in the current occupation, the involvement in formal training program before starting the present job.

In the following Tables 4-6 I report the results of the estimates, focusing only on the main estimated coefficients.⁹

The basic idea is that people searching on the job are doing so in order to improve their wage (Mortensen, 1986), therefore we expect to find a positive effect of past search on the job on the wage of movers. However, the evidence commented in the previous section would also indicate differences among countries.

Table 4 reports the coefficients of the wage equation (1) estimated for movers. The estimation results point out that search on the job is not very effective in terms of earnings, since there is no evidence of a positive interaction between previous employed job search and current earnings. In fact, at best, search on the job is not significant, whereas for Portugal, there is evidence that those involved in search on the job in their previous position experience a wage loss of about 8%, in terms of hourly real wage, compared to movers that didn't look for another job while employed. This last remark is particularly worrying if associated with the determinants of employed search discussed in the previous section. In fact, it confirms that in Portugal job search while employed is mainly a constrained option, to find more "secure" or stable jobs, rather than an opportunity to career advancing.

⁸ For each wave I select only employed individuals (PE003= 1,2) to set up the unbalanced panel. However, when running the regression, the inclusion of the lagged value for the dummy accounting for search on the job (PS001) implies that only individual present in at least two consecutive waves are included in the sample. Of course, for each observational unit at time t , I add a variable, search0, which is equal to 1 if the lagged value of PS001 was 1 or 3; in so doing, the lowest number of wave participation is 1.

⁹ The full set of estimates is available upon request.

Table 4: estimated wage equation for movers

	Netherlands	Italy	Portugal
Experience	-0.041***	-0.01	-0.04***
Experience ²	-0.0004	0.0007**	-0.0007
Tenure	0.005	0.002	-0.01
Tenure ²	0.0001	0.0002	0.001
Search on the job	-0.001	-0.02	-0.08***

In addition, if we consider a job stayer, that is a worker with job tenure larger than one year, Table 5 shows that for workers involved in job search when already employed on the present job, there evidence of a lower current wages for all the considered age groups in Italy. In the two remaining countries, Portugal and Netherlands, there is no evidence of any significant interaction with current earnings. This result must be interpreted carefully, since there is a possible endogeneity arising: those stayers with low earnings are more likely to be looking for a new job, as also confirmed by the evidence depicted in the previous section.

The estimated wage equations for movers and stayers give some support to the intuition that in Italy and in Portugal those involved in “on the job search” are among the weaker in terms of earnings, as already stated when considering the determinants of search on the job.

Table 5: estimated wage equation for job stayers, by age-group and country

		16-26	26-36	36-46
Search on the job	Netherlands	-0.03	0.018	-0.006
	Italy	-0.04***	-0.028***	-0.03***
	Portugal	0.003	-0.003	0.01
Work Experience	Netherlands	-0.002	0.02**	-0.016
	Italy	0.03***	0.0000	-0.01***
	Portugal	-0.019***	-0.058***	-0.072***
Job Tenure	Netherlands	0.0005	-0.0002	0.0007***
	Italy	-0.002***	-0.0000	0.0004**
	Portugal	-0.0007	0.0002	0.0004***

However, this preliminary finding can't be interpreted as conclusive, since it doesn't help in understanding the effect of search on the job on wage dynamics. To this scope, I repeat the estimates considering the wage growth as a dependent variable.

When estimating the effect of search on the job on wage increase, Equation (1) reads as follows:

$$\Delta y_{it} = \alpha_0 M_{it} + \alpha_1 EXP_{it} + S_{it-1} \beta_5 + \varepsilon_{it}$$

where the dependent variable is now the growth rate of wage earnings, and M_{it} is a dummy controlling for job to job movers.

The estimated coefficients are displayed in Tables 6, where I focus only on workers experiencing a positive wage dynamic, distinguishing, for each country, three age groups (16-26; 26-36; 36-46).

In a first step, I only consider the effect of previous search-on-the-job on current wage change (model 1); in a second stage I add as an explanatory variable a dummy controlling for those workers changing job, M_{it} ; finally, I regress the wage growth rate on a dummy controlling for movers, and another one accounting for the interaction

between previous search-on-the-job and job movers. Actually, on the job search is usually a preliminary step to a job change, therefore, these two additional steps aim to disentangle the separate effect of search on the job and job mobility, to check if they can be considered separate explanatory variables.

Table 6: the effect of past search on current wage growth, by age-group and country

	Netherlands	Italy	Portugal
Model 1:			
Previous search	.03, .00, .05**	.01, .02* , -.00	.08*** , .04** , .08***
Model 2:			
Previous search	.00, -.01, .05**	.00, .01, .00	.07*** , .04** , .06**
Movers	.1*** , .08*** , .03	.1*** , .07*** , .03	.06*** , .08*** , .09***
Model 3:			
Movers	.1** , .08** , .05	.1*** , .05*** , .04**	.05*** , .06*** , .09***
Previous search when Movers	.08, .00, -.00	.03, .06** , -.05	.02*** , .04, -.06

In Portugal, the country displaying the lowest size of employed search, there is strong support to the claiming that this latter positively affects wage mobility. Workers in the three considered age groups (16-26; 26-36; 36-46), when engaged in search-on-the-job experience, respectively, an additional growth of the hourly wage rangin between 4 and 8%. This result is considerably less significant in Netherlands, a 5% gap for workers in the age group 46-56, and in Italy , 2% for the group of workers aged 36-46.

This wage rise may be connected to a bargaining power inside the firms or to job to job mobility. In this latter case, the contribution of search on the job might be over estimated, since, given the frequency of the survey, some of the movers at time t might not be among those claiming to look for different job at time $t-1$. Therefore, to test this issue I add a control dummy into the regression to account for job to job dynamic (model 2). In model 2 there is evidence of significant interaction between job to job mobility and wage growth in all the three countries, since the dummy controlling for movers is significant and positive. However, this doesn't change the evidence about the positive effect of previous search on the job in Portugal.

Then the evidence displayed confirms that job shopping has a major role in explaining wage growth, independently from the institutional features of the labour market.

A further question might be to check if those movers also involved in job search experience a wage growth premium compared to the remaining job to job movers. This issue in investigated in model 3, adding an interaction dummy controlling for movers also engaged in job search. As the digits displayed in Table 6 show, the estimated coefficients in model 3 are not much different from the ones of the model 2, suggesting that job to job mobility and job search might account for separate explanations of wage growth.

The evidence about the effect of search-on-the-job on wage mobility may appear, at first glance, counter intuitive. The country with the lowest share of employees engaged into job search is also the one with the best performance in terms of wage mobility. The contradiction is less so if we recall the two alternatives pushing workers

to look for a job when employed. According to the theory, a large size of search on the job might be related to: i) a low reservation wage of workers deciding to do part time rather than full time search ii) the opportunities of job to job mobility. Though the two motivations are not mutually excludable, we expect to find a prevalence of the latter one in flexible compared to those rigid and regulated labour markets. Moreover, when the first motivation is the one prevailing, then we expect to find more successful search on the job in terms of wage rise, simply because the starting wage of interested workers is very low. This is supported by the fact that in Portugal the good performance of employed seekers in terms of wage increase coexists with a poor performance in terms of wage level.

This helps to explain the apparently conflicting evidence that in a rigid labour market, such as Portugal, we find a positive interaction between employed search and wage mobility, whereas in the flexible market, i.e. Netherlands, no significant interaction arises.

7. Conclusions

In this paper I have investigated the determinants of job search while employed and the effect it has on wage mobility in three European countries using the European Household Panel Survey (EHP).

The evidence adds useful insights about differences across European countries, and gives some challenging results about the effectiveness of search on the job.

Search on the job is very widespread among young workers, and is mostly registered in the bottom area of the wage distribution. Nonetheless differences across European countries are remarkable, with the average size of employed search ranging from a minimum of 3% to a maximum of 20% of total employees. Therefore, it is expected to find large difference in the determinants as well as in the outcomes of this phenomenon. To further clarify these issues I have focused on three countries, representative of the three groups of classified as *high*, *low* and *mean* search-on-the-job countries.

As to the determinants of the on the job search, panel estimates suggest that the motivation pushing employed workers to look for a job are very different across countries. When the ratio of employed search is high the prevailing explanatory variable are related to job dissatisfaction; in this case we also find that the longer the job experience, the more likely active search for a new job is. Conversely, in those countries registering a lower size of employed search the main determinants refer to job security and earnings, with the job related characteristics, envisaging stable labour relationship (full time and permanent positions), playing a major role in affecting search on the job. Only for Italy I find evidence that education positively affects search on the job.

These remarks would suggest that search on the job is not always related career improving transitions (job shopping), in order to gain wage increase, but may also characterizes the more weak segment of the labour force, accepting very poor positions rather than staying unemployed, but keeping on looking for more stable and better paid job.

This concern is strengthened by the estimated wage equations among employed workers looking for a job. Focusing on the wage level of workers moving from one job to another, the estimates show that previous search doesn't add to explain current wage, or, if so, it seems to give a negative contribution such as it is in Portugal. However, when looking at wage increase, there is some apparently contrasting

evidence. On the one hand, I find that search on the job is not a significant variable in explaining wage rise, with the exception of Portugal, i.e. the country with the lowest share of workers engaged in on the job search. On the other hand, job to job mobility emerges as a clear positive event, allowing to get larger wage growth in all the three examined countries, and in particular in Netherlands.

This conflicting evidence can be explained again considering the different nature of on the job search. When it is mostly related to a second best option for workers pushed by the nature of their job position to look for a different job, it is expected that their search effort, given their low wages, is more likely to be successful, though, in absolute terms, they still experience low wages. This worrying claiming is consistent with the evidence provided in the paper.

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