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ABSTRACT

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Using Portuguese data, this paper investigates the effects of job search methods on escape rates from unemployment and of job-finding methods on earnings. The effectiveness of the job search process is also evaluated in terms of the periodicity of the resulting job match. Emphasis is accorded the role of the public employment service. Despite its frequency as a search vehicle, the state employment agency is shown to have a low hit rate, and to lead to lower-paying, shorter-lasting jobs.

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1. Introduction

The process of job search has received comparatively little attention in the job search literature, which has been more concerned with the determinants of the reservation wage in a framework that has often taken the arrival rate of job offers to be exogenous (e.g. Narendranathan and Nickell, 1985). Although job search has been modeled in a number of theoretical and empirical treatments, the tendency has been to treat search effort as a uniform activity (e.g. Lippman and McCall, 1976; Barron and Mellow, 1979). This is unsatisfactory given long-recognised differences in job search methods (e.g. Bradshaw, 1973), which clearly differ in their time and money costs, coupled with suggestive evidence on the apparent success of some routes (notably, the informal channel of friends and relatives) and the seeming ineffectiveness of others (principally the public employment service).[1]

Recently, the process of job search has attracted greater empirical scrutiny with a view to enriching and ultimately testing the basic search model. In first reviewing this literature, however, our concern is less with its implications for the search model than in addressing areas of controversy and setting the scene for our own empirical inquiry. We use a unique data set for Portugal that allows us to assess the effects of different job search strategies on escape rates from unemployment as well as to gauge the effectiveness of the resulting matches. Much attention will be accorded the public employment service because of disagreement in the sparse literature as to its efficacy, and because the new 'employment strategy' of the EU relies heavily on member states' public employment services for its traction.

2. The Empirical Literature

The literature on the process of job search is largely confined to U.S. and British studies. The former contain measures of the time intensity of the various search strategies pursued by job

seekers, plus information on the number of contacts made and offers received through each search method. By contrast, the British studies have typically had to work with limited information on job search strategies and job finding methods.[2]

The best-known U.S. study is Holzer's (1988) analysis of the search behaviour of unemployed workers aged 16 to 23 years from the Youth Cohort of the National Longitudinal Survey in 1981 (see also Holzer, 1987). In Holzer's job search model, the choice of job search methods are related to their costs and expected productivities, as well as nonwage income. In each period, the unemployed individual seeks to maximise the sum of current and expected future utility by choosing a reservation wage and a level of search intensity. The reservation wage determines the probability of accepting an offer while the set of search methods determine the generation of job offers (though not wage offers).

Five search methods are distinguished: friends and relatives, responses to newspaper advertisements, state employment agencies, direct applications to employers, and 'other' methods. The use of friends and relatives and direct applications to firms are not only used most frequently but also most time intensively as well. They are also the most productive in generating offers and acceptances conditional on their use.

Holzer examines the determinants and outcomes of search. For its part, search intensity is modeled as a function of the probability of obtaining an offer. The relation is direct, suggesting that search intensity reflects the expected returns to search. At the individual search method level, predicted offers have positive coefficients for direct applications, advertisements, and 'other' methods. Negative associations are reported for friends and relatives and the state employment agency. It is argued that the low cost of the friends and relatives route justifies use

of this method, and that the state employment agency is utilised by those with few opportunities to begin with.

As far as outcomes are concerned, Holzer separately regresses a measure of job offers received on first the number and then the type of search method used. Search intensity has a positive and statistically significant effect on the probability of receiving an offer (as well as acceptances). All the individual routes have positive coefficient estimates, although only those for friends and relatives are statistically significant at conventional levels. Nevertheless, Holzer (1988, 17) chooses to interpret the positive association between use of the state employment service and receipt of offers as noteworthy 'given their reputation for low effectiveness'.

Holzer's finding as to the apparent effectiveness of the friends and relatives route is underscored by Blau and Robins (1990) in an analysis of Equal Opportunity Pilot Project data for 1980. The authors' analysis of conditional (on use of the method) offer and acceptance rates indicates that this search method generates the most offers per contact and the most acceptances per contact, while having the highest acceptance rate per offer.[3] However, Blau and Robins also report that the public employment service generates among the lowest offer and acceptance rates of all job search methods. Relatedly, Keeley and Robins (1985) had earlier found negative effects of the number of job search methods used on the probability of gaining employment – a result that they attributed to the job search requirements of the U.S. unemployment insurance system. Unemployment insurance (UI) recipients were found to use more methods of search but make fewer contacts and receive fewer offers than non-recipients. This pessimism as to the efficacy of the U.S. public employment service is echoed more strongly in a number of other U.S. studies (e.g. Ports, 1993; Bishop, 1993; Wielgosz and Carpenter, 1987).

British research on the operation of the public employment service is altogether more optimistic. Thus, in a study using Labour Force Survey (LFS) data for the interval 1984 to 1992 and quarterly LFS flow data for 1992, Gregg and Wadsworth (1996) report that around 70% of unemployed job seekers make use of Jobcentres, and that one in five matches are attained via this route. Gregg and Wadsworth's descriptive data for 1992 indicate that the media (i.e. advertisements) and the Jobcentre are the two most popular search methods followed by friends and relatives route. (The remaining categories are direct applications, private employment agencies, and 'other' methods which are subsequently used as the default.) These search methods also record among the highest successful placements, their comparatively low hit rates being more than offset by their higher frequency of use.

In estimating the probability of successful transitions out of unemployment, the authors' probit analysis (for males) shows that direct applications, advertisements, and the Jobcentre each have positive and statistically significant coefficients. The estimated marginal effect of using a Jobcentre, as opposed to 'other' methods, is to increase the average transition probability by 3.4 percentage points above the sample mean, implying a reduction in jobless duration of around three months (average duration being approximated by the outflow rate). Other interesting results from this transitions equation are the increasingly negative effect of job search duration; the finding that the Jobcentre coefficient estimate is highest among the long-term unemployed; and the significantly positive effect of direct applications for both short- and long-term unemployed.[4]

In a final iteration, Gregg and Wadsworth model the probability of using the various search methods, conditional on making a transition into work. They report that duration of joblessness is positive for the Jobcentre route, negative otherwise. Interestingly, the effect of being an UI beneficiary is negative and significant for the Jobcentre route, implying that

claimants are less likely to have secured work through the public employment service. The opposite is the case for direct applications to firms. Low-skilled workers only appear to gain if they use the Jobcentre route.

Given the tensions within the still sparse empirical literature, and the deficiencies of the British data, the need for additional European information is urgent. To this end, our treatment of the Portuguese data supplements the analysis of transitions out of unemployment with an investigation of wage outcomes. The success of the job match is also evaluated by linking transitions from employment into unemployment to the way in which the job was located.

3. The Portuguese public employment service

The agency responsible for running the public employment service (PES) in Portugal is the Institute for Employment and Vocational Training (IEFP), a division of the Ministry of Labour and Solidarity. The IEFP is responsible for job broking, vocational guidance, administering employment subsidies, vocational training, and apprenticeship training. It does not administer unemployment benefits, which are instead the responsibility of the social security branch of the Ministry. However, payment of benefits hinges on prior registration with the IEFP, and continued benefit receipt requires the recipient to confirm his or her subsequent unemployment status with the agency. Access to benefits can be denied the recipient following a refusal to undertake suitable work or training.

As regards the job-broking function, the IEFP does not have a placement monopoly. Both temporary work agencies and private employment agencies are allowed, but they account for a trivial number of placements (see below, and OECD, 1998, 114). Employers are under no obligation to notify vacancies, and IEFP placements as a share of all hirings in the economy are lower than in most industrialized nations. Placements into regular jobs exceed placements into

the largest manpower programs for the unemployed, although some of these jobs are subsidised (OECD, 1998, Table 3.1).

Vacancies are mostly handled on a closed basis: 85% of vacancies are neither advertised nor displayed. The IEFP selects for each vacancy a small number of suitable job seekers from the register who are called for interview and then sent on to the employer for interview. Referrals average three per vacancy. Vacancies, which are commonly accepted by phone, are entered into an automated system for job broking (known as SIGAE), which also contains full historical data on the job seeker who is assigned one or more 6-digit occupational codes. In the matching process, vacancies go on hold in the wake of an initial referral.

Job search programmes in Portugal are small scale. They include collective information sessions of a largely untargeted nature, job clubs targeted to the long-term unemployed, and individual assistance plans aimed at benefit recipients who have been jobless for more than six months. Expenditures for job search assistance are dwarfed by subsidies to employment for youth and adults, self-employment measures, direct job creation, and training programmes.

Subsidies to the employment of youths (and the long-term unemployed) include a programme of exemption from social security charges. Self-employment schemes are quite varied, the most important being the capitalisation of unemployment benefit entitlements and a local employment initiative scheme which pays a start up grant and a loan to non-recipients. For its part, direct job creation is nontrivial and of growing importance over our sample period, but is again not specifically targeted at the long-term unemployed. The main component of direct job creation is an 'occupational employment' program, which employed a little over 23,000 individuals in 1996 (OECD, 1998, Table 5.6). Finally, training programmes dominate other manpower measures. Youth training measures account for 35% of active labour market

programme expenditures. Interestingly, more is spent on training employed adults than their unemployed counterparts (27% and 6% of active labour market programme outlays, respectively). Of the latter, roughly one-half of those in adult training programmes are long-term unemployed. However, the relatively low numbers involved means that the long-term unemployed are more likely to receive other types of support (e.g. occupational employment).

In sum, the Portuguese public employment service has both novel and more traditional components. The modern feature is the computerised, comprehensive system of job broking, covering all notified vacancies and unemployed registrants. That said, PES staffing relative to the total population is lower than in most other industrialised nations and is becoming increasingly strained and diverted away from placement work. In particular, limited attention is devoted to the long-term unemployed. The encouragement of job search on their part is rather cursory if not minimalist – unemployed benefit recipients are only required to be interviewed every fifth month. This is problematic in view of rising eligibility for unemployment insurance and unemployment assistance. As far as active labour market programmes are concerned, a limiting factor is the inadequate attention accorded the factors associated with the transition into long-term unemployment (see Portugal and Addison, 1999). Another concern, by no means restricted to Portugal, is the phenomenon of cycling between unemployment benefits and participation in manpower programmes.[5]

4. Data

Our data are taken from the quarterly Labour Force Survey(s) (*Inquérito ao Emprego*) of the Portuguese National Institute of Statistics (*Instituto Nacional de Estatistica*). This nationally representative survey enquires of a random sample of individuals their current labour market status including elapsed duration in that state, and labour market history.

The employment survey has a quasi-longitudinal capacity. Each individual is interviewed for six consecutive quarters, thereby enabling us to track transitions across states – employment, unemployment, and inactivity – for up to five quarters. Transition rates are obtained by identifying those in a given state, and their elapsed duration, who moved out of that state over the course of the subsequent quarter and dividing by the total number of individuals with the same elapsed duration in that state. In the case of transitions out of unemployment, for example, conditional probabilities of exiting unemployment can be thus be computed at different durations to yield quarterly hazard rates, namely, the pattern of reemployment probabilities by unemployment duration.[6]

This type of sampling plan of observation over a fixed interval (see Lancaster, 1990) will be used to identify the contribution of the various job search methods, described below, to escape rates from unemployment over the interval 1992-96. Since we can also track all transitions out of employment into unemployment, we can furthermore offer a measure of the effectiveness of the match produced by a particular job-finding method for the period 1994-97 (job-to-job transitions can only be identified after 1993). The data will also be used in a stock fashion to assess the contribution of job-finding methods to earnings in 1997 to provide additional information on the effectiveness of the public employment service (adequate wage information is unavailable prior to 1997).

Turning to job search methods, seven job search categories are fashioned from the survey: direct applications by unemployed workers to firms ('direct approach'), pursuit of informal methods ('friends and relatives'), use of the media ('advertisements'), 'self-employment', 'examinations', and a residual group of 'other' methods.[7] The self-employment category necessarily refers to activities preparatory to self-employment proper and encompasses attempts

to obtain financing and equipment, or space to run a business. The category of examinations also includes interviews with an employer in addition to actual tests.

The employment survey also identifies job finding methods. We identify eight such categories. The additional classification identifies situations in which the individual was 'contacted by an employer'. This new category covers direct recruitment strategies on the part of firms other than via advertisements. In the case of job-finding methods, the classifications of self-employment and examinations are now formally that and hence do not exactly match job search strategies of the same nomenclature used for unemployed individuals.

In the analysis of transitions, the job search and job finding methods relate to successive quarters. For the stock-of-wage-earners analysis, job-finding methods pertain to the current job, which may in the limit have been held since labour market entry (although we shall also provide results for a subset of workers who moved into employment in the last three months). Each job search and job-finding measure will be employed in the transitions analysis. For the wage analysis, the category of self-employment is omitted because the survey does not provide earnings data on such individuals.[8]

In addition to the job search and job-finding methods, the employment survey also includes information on the unemployment benefit status of the unemployed individual. In the present treatment, we use a simple dummy variable to capture the effects of receipt of unemployment insurance (and assistance). Other variables in the survey include information on the individual's age, marital status, level of schooling, past receipt of vocational training, tenure on the previous and current job, years of labour market experience, wage, number of jobs held, occupational status, reason for job loss, industry, and region of residence.

Of these arguments, all of which are used in our regression analysis, only the wage variable requires some amplification. Survey wages (prior to 1998) are measured as a categorical variable, comprising thirteen wage intervals. These are well spread among the distribution.[9] Left- and right-censoring characterise the bottom and top intervals. To estimate the wage equation, therefore, we use a grouped regression model and assume a parametric distribution (the lognormal) for the error term. As a check, we also provide a conventional OLS specification, using more recently available continuous wage data.

Finally, the restrictions imposed in the transitions analysis were that the individual be unemployed – or employed in the case of transitions into unemployment – at the time of the survey. The only remaining restrictions, used in both the transitions and wage earner stock analysis were that the individual be aged between 16 and 64 years, and be resident in mainland Portugal.

5. Methodology

In order to analyse the quarterly transitions from unemployment into employment, since the information on elapsed unemployment duration is given in months we specify a discrete time duration model. Calendar time is divided into K intervals $[0, c_1), [c_1, c_2), \ldots [c_{k-1}, \infty)$ where c_t define the limits of the intervals. Even though we observe elapsed unemployment duration in months (up to 98 months), in practice we aggregate unemployment duration in eleven duration intervals corresponding to 1, 2, 3, 4, 5, 6, 7-9, 10-12, 13-18, 19-24, and more than 24 months. Discrete time (unemployment duration) $T \in \{1, 2, \ldots k\}$ is observed with $T=t$ denoting exit into employment within interval $[c_{t-1}, c_t)$. The discrete hazard function, depicting the conditional probability of an individual exiting into employment at interval t, given that he or she stayed unemployed until t, is given by

$$?(t \mid x) = P\,(T = t \mid T = t,\, x) \qquad t = 1, 2,\ldots,k-1$$

where x denotes a vector of covariates. Given our sample plan and the discrete nature of the duration of unemployment, a successful event is defined as the occurrence of an exit into employment over the course of a quarter, obtained from observed changes in labour market status over successive quarters. Thus, transition rates are quarterly and give the probability of moving into employment over a period of three months, given that the individual stayed unemployed until then.

Assuming a proportional hazards (or Cox) specification for the effects of the covariates, the grouped proportional hazards model is defined by (Prentice and Gloeckler, 1978)

$$?(t \mid x) = 1 - \exp\left[-\exp\left(?_t + x^{'}\beta\right)\right]$$

where the parameters of this piecewise baseline hazard function result from

$$?_t = \log\left[\int_0^{c_t} ?_0\,(u) - \int_0^{c_{t-1}} ?_0\,(u)\right]$$

and where $?_0(u)$ denotes the underlying continuous baseline hazard function.

If, however, we want to distinguish between distinct job finding methods being instrumental in the job search process, we can specify a cause-specific hazard function (namely, a competing risks model), where we model the conditional probability of exiting from unemployment into employment through a specific job finding method j, as

$$?_j\,(t \mid x) = P(T = t, J = j \mid T = t,x)$$

More specifically, under the proportional hazards assumption,

$$?_j\,(t \mid x) = 1 - \exp\left[-\exp\left(\boldsymbol{g}_{j_t} + x'\beta_j\right)\right]$$

The wage information provided by the Portuguese household survey is given in thirteen distinct intervals. In other words, wages are grouped into thirteen ordered classes. Fortunately,

the limits of the intervals are known, leading naturally to a standard grouped dependent variable model

$$\ln w = \sum_{i=1}^{I} 1 \ \{x'\beta + ? > a_i\}$$

where the latent variable *ln w** is assumed to be determined by

$$\ln w^* = x'\beta + ?$$

and is known to fall in one of the I+1 ordered intervals $(0, a_0]$, $(a_0, a_1]$, …, $(a_I, 8)$, which correspond to prespecified log wage intervals. If ? is assumed to be normally distributed the model will correspond to a conventional grouped log-normal dependent variable model.

Finally, the choice between fixed-term and open-ended contracts can also be is defined in terms of a latent variable model

$$V^* = x'\beta + ?$$

where *V** can be viewed as the unobserved value of staying in a given state (say employment). The binary response model can then be expressed as an indicator of the positivity of the latent variable

$$V = 1 \ \{x'\beta + ? > 0\}$$

which will lead to the binary logit model if ? is assumed to be extreme value distributed.

6. Findings

Table 1 presents descriptive information from the quarterly transitions data covering the interval 1992(2)-96(4). The first column of the table gives the number of unemployed individuals in a given quarter using any of the seven identified search methods. The public employment service is evidently the most common search vehicle (used by 26% of unemployed job seekers), closely followed by the use of friends and relatives (24.8%) and direct applications to employers (22.3%). But note that individuals in our sample typically use more than one search method.

(Table 1 near here)

The second column of the table provides the number (and share) of each category of those unemployed identified in the first column who transitioned into employment in the next quarter. Thus, for example, of the 7,138 unemployed individuals using the direct approach in t-1, some 1,211 (or 17%) were reemployed in quarter t. The 'success rates' fall in the relatively narrow range of 13.8% (advertisements) to 18.5% ('other' methods). We cannot of course conclude from this information the extent to which any one search strategy is any more successful than another because job seekers use multiple search strategies. More information in this regard is conveyed by the 'hit rates' shown in the third column, since these directly link job search strategies used in the previous quarter to job finding method in the next quarter. More marked differences now characterise the sample. With the exception of self employment – which may or may not represent a truly successful transition, and where the numbers involved are modest – the use of friends and relatives emerges as the most successful strategy (the hit rate is 7.5%), followed at some distance by direct applications on the part of the unemployed worker to firms (4.3%). The balance of the search methods have hit rates that fall in the band 1.2% to 1.9%, the public employment service occupying a middle position in this range.

Finally, the fourth column of the table simply identifies the job finding method of those who found work in a given quarter. Thus, for example, 501 workers unemployed in the preceding quarter found employment in the next quarter via the direct approach, representing a little over one-fifth of reemployed workers. Since 305 of these had also used the direct approach as a job search strategy when unemployed, it follows that 196 of the total did not report use of this strategy in the preceding quarter. In other words, a non-trivial fraction of the unemployed found work through search methods they were not using in the previous quarter.[10]

(Table 2 near here)

The material in Table 1 abstracts from the personal characteristics of those using the various job search strategies (and job finding methods). A *ceteris paribus* treatment of the probability of escaping from unemployment between successive quarters by the job search method used in the previous quarter is provided in Table 2. No omitted search category is deployed because of the use of multiple job search strategies by the unemployed. Directly, the table only allows us to evaluate whether some search strategies appear to work in raising transitions as compared with the artificial situation of no search methods (although one can compare any pair of job search methods by simply taking the difference between the relevant coefficient estimates). In this light, 'successful' search methods appear to be direct applications to employers, taking examinations, and self-employment. Compared with the counterfactual, these three job search methods elevate transitions by 24.5%, 19.7%, and 49.5%, respectively. By contrast, there is no indication that use of the other search methods materially raises hazard rates.[11]

The behaviour of the controls is much as expected. Thus, schooling, the number of jobs previously held, being male, and the necessarily anticipated termination of a fixed-term contract are all associated with higher escape rates, while receipt of unemployment benefits, tenure on the lost job, age, and labour market entry (denoted by 'first job') all serve to depress escape rates. As far as the other covariates are concerned, the year dummies broadly indicate that flows out of unemployment are pro-cyclical because 1992, the omitted category, is a year of low unemployment. For their part, the regional dummies capture higher unemployment rates in regions with large metropolitan areas (the North and Lisbon) or subject to high seasonality due to tourism (the Algarve). Finally, not shown in the table is the associated eleven-element baseline

hazard function. This displays strong negative duration dependence, that is, escape rates decline with jobless duration. Thus, to take the case of a 30-year old unemployed male with nine years of education – and who is assigned a zero value for all the other variables – the quarterly transition rate into unemployment declines from 30% after one month of unemployment to 25% at six months, and to 17% after twenty-five months.

(Table 3 near here)

Table 3 considers the disaggregate hazards for successful job search methods in the quarter following unemployment, focusing on the role of individual characteristics. Successful transitions correspond to the data in the final column of Table 1, the small discrepancies in the respective cells being accounted for by the additional job finding method of direct contacts on the part of employers. In this hazard regression model, we are estimating the impact of the covariates on the conditional probability (i.e. conditional on unemployment duration) of getting a job through a specific job-finding method.

The most important of the results in Table 3 are as follows. First, as is to be expected, unemployment benefit recipients are less likely to make a success of the various job search methods than are non-claimants. The major exception in this regard is the public employment service, where the benefit coefficient estimate is both positive and statistically significant. This result is most likely a consequence of the requirement that the unemployed be registered with the public employment agency in order to collect benefits, and does not necessarily have any direct behavioural interpretation. That said, it may also be the case that unemployment benefit recipients may lose their benefits if they fail to take the job offered by the public employment service. Second, higher levels of schooling clearly facilitate employment transitions through the examinations route, although they do nothing to improve the reemployment prospects of those

entering employment with the guidance of the public employment agency (or via several other routes). Third, direct search and the friends and relatives route noticeably fails to facilitate the reemployment of older (and white-collar) workers *vis-à-vis* their younger (blue-collar) counterparts, while the negative effects of tenure on the previous job are much more consistent across all job finding mechanisms. Finally, males gain most from direct approaches to firms and the use of informal networks, which routes are also the most important for those with greater job-holding in the past. In sum, rather different observed characteristics do after all define the success of the various job-finding methods.

(Figure 1 near here)

Figure 1 provides information on the baseline hazards for the eight job-finding methods. Again, these correspond to a male individual aged 30 years with the mandatory schooling level of nine years, and where all the other variables assume zero values. The height of the various functions reflects the frequency of use and the productivity of the job finding methods. The principal result is the negative duration dependence attaching to the direct approach, informal methods, and advertisements. No such evidence of declining escape rates with unemployment duration applies to public service employment. Although the pattern is consistent with some individuals using this route after all other job search methods have been tried without success, the more important observation is that transition rates for jobs found through the public employment service are always very low, irrespective of the duration of employment. The hazard rate for self-employment is interesting in two respects: first, it is rather high; and, second, it does not display negative duration dependence, suggesting that starting up a new business is not a strategy of last resort. As far as the remaining job-finding methods are concerned, the limited sample sizes serve to limit the inferences that can be drawn concerning duration dependence.

We next evaluate the success of the respective job finding methods in terms of earnings levels and subsequent transitions from employment into unemployment.[12] Beginning with earnings development, Table 4 considers earnings functions by job finding method for the entire stock of wage earners in 1997. Because there can only be one successful job finding method, the fitted equations now use an omitted category, namely, 'other' methods. It will be recalled that survey wages in 1997 are in the form of a categorical variable. Accordingly, the estimates of a conventional Mincerian earnings regression, given in the table, were obtained from a grouped regression model.

(Table 4 near here)

The first column of Table 4 presents results for the most parsimonious specification of the log-linear model that includes only the job-finding methods as arguments. It provides a rather different picture of the success of job search than is evident in the flow data (see Table 2). Thus, the two most popular job search/job finding methods of direct approaches to the employer and the use of informal networks are markedly less successful in terms of earnings (than the omitted category). The positive role of the examinations route is correspondingly elevated in importance. The one constant across tables is the seemingly poor performance of the public employment agency: workers who report having found a job through this route receive 38.7% less than those who obtained their job through 'other' methods.

Our earlier results pointed to the importance of individual characteristics in determining transitions from unemployment. The second column of Table 4 confirms that the same obtains for earnings. In four out of five cases, the negative coefficient estimates for the relevant job-finding methods are substantially reduced in absolute magnitude with the inclusion of the human capital, demographic, and other controls. Nevertheless, the relative earnings disadvantage

attaching to the public employment service route is more twice that of its closest contenders (and is 18% less than the reference category of 'other' methods). The magnitude and sign of the coefficient estimates for the human capital controls – receipt of vocational training, schooling level, and years of experience – are quite conventional, and the effect of full-time employment is predictably strong. The pattern of industry differentials is also unsurprising, the omitted category being agriculture.

The penultimate column of Table 4 adds 'temporary work' in the form of fixed-term contracts to the list of regressors. Also added are years of tenure since our sample is the population of all wage earners at end of the survey period. In fact, as shown in Appendix Table 1, jobs found through the public employment service are, other things being equal, more likely to be of a fixed-term nature. Specifically, the odds ratio is 4.7, meaning that a job found through this route is 4.7 times more likely to be a fixed-term contract as compared with the reference category of 'other' methods. Not surprisingly, therefore, when fixed-term contracts (and tenure) are included in the earnings function, the relative earnings disadvantage associated with job finding via the public employment service is somewhat attenuated.

There remains the possibility that the impact of the public employment service could be picking up a duration effect on wages. If human capital depreciates with the length of the jobless spell, and the longer-term unemployed make disproportionate use of the public agency, the previously estimated coefficient estimates for the public employment service might be considerably overstated. To test this possibility, we added a variable indicating the individual's jobless duration prior to the reemployment event for each of the specifications contained in the first three columns of Table 4.[13,14] The final column of the table reports the results of this exercise for just the fullest specification. It can be seen that

although the effect of prior jobless duration is both negative and well determined, the coefficient estimate for the public employment service is virtually unaffected. (The same is true for the duration-augmented counterparts of the more parsimonious specifications in the first two columns of Table 4, for which the coefficient estimates for the public employment service are -0.464 (0.026) and -0.187 (0.018), respectively.) Accordingly, there is every evidence to suggest that the public agency wage effect is robust. Expressed another way, there is little indication that the wages in jobs secured through the public employment service materially reflect employment-of-last-resort considerations on the part of unemployed job *seekers*. Note that these estimates are meant only to be indicative. This is because a correct reading of the search-theoretic literature would caution that wages and unemployment duration are jointly determined; not only does duration have a direct effect on reservation and offered wages but the latter will also feed back into duration (for an empirical assessment of simultaneity bias in wage equations stemming from the joint determination of wages and unemployment, see Addison and Portugal, 1989).

As a further check on these earnings results for the entire stock of wage earners in 1997, we also estimated a wage equation for a restricted sample comprising only those who had moved into employment in the last three months. For this purpose, we had to rely on information on transitions for 1998 and 1999. (The relatively small number of transitions in 1997 taken in conjunction with the grouped wage information, proved insufficient to identify meaningfully the influence of all the job methods.) Given the availability of continuous wage data for 1998 and 1999, however, we were able to use more conventional OLS regression methods. With the exception of the exclusion of the tenure variable and the inclusion of a dummy for 1998 (to standardise real earnings) all the remaining covariates were otherwise the same as in Table 4.

The findings are presented in Appendix Table 2 and mirror our previous results. In particular, a material disadvantage attaches to jobs found through the public employment service – 20% in the preferred specification *vis-à-vis* 'other' methods – while the advantage associated with the examinations route was on this occasion particularly strong (40.6%). One other interestingly result is that the sign on the fixed-term contract variable is reversed, suggesting that the disadvantage of atypical work does not show up in starting salaries. We should also note that, using a Tobit model truncated at the minimum wage, thereby excluding those individuals earning wages at or below the state minimum, yielded virtually identical results. Even after netting out minimum wage jobs, then, the wage disadvantage attaching to jobs found through the public employment service persists (now at around 15%), again suggesting that our results are not driven by occupational employment schemes. Full results of this exercise are available on request.

We turn in conclusion to the issue of labour market transitions subsequent to the job finding event. On the basis of the stock data, just 1.8% (=[546/30,166].100) of currently employed workers reported that they found work through the public employment service. This may be compared with the corresponding value of 10.4% (=[124/1192].100) from the flow data in the third column of Table 2. The clear implication is that such jobs are shorter lasting.[15] To cast further light on this issue, we can use flow data for 1994-97 to examine transitions from employment to unemployment.[16] **We note that the data do not allow us to distinguish between quits and layoffs, but it can safely be assumed that the latter dominate given the low flows through unemployment relative to total worker outflows identified in Blanchard and Portugal (2001).**

So as to be consistent with our earlier analysis, Table 5 provides hazard regression estimates of the flows out of employment. Separate results are given in the table for a constant baseline function hazard, and for two specifications of a piecewise constant hazards model in which the baseline is defined by five tenure intervals. In each case, the reference category is again 'other' job finding methods. The first column of the table indicates that, compared with 'other' methods, jobs found through the public employment agency are a little over four and one-half times more likely to be associated with transitions into unemployment. Although solicitations from employers and use of advertisements are also associated with higher transitions, the effect is much less pronounced. On the other hand, those who found work through the examinations route are only one-third as likely (as the omitted category) to transition into unemployment. As far as the other regressors are concerned, the effects of schooling and age in lowering transitions and being female in elevating them is thoroughly conventional.

(Table 5 near here)

The second column of Table 5, wherein a more flexible baseline hazard model is used, provides similar results. The main change is a large reduction in the negative effects of the public employment service, which is now associated with almost a doubling in the probability of transitioning into unemployment versus 'other' job finding methods. The coefficient estimate for the examinations route is, however, largely unaffected. The final column of the table again adds atypical work and part-time employment to the list of regressors for this flexible representation of the baseline hazard. The main effect of this augmentation is to further reduce the turnover implications of the public service employment route to job finding which is now associated with a 42% higher hazard rate than 'other' methods, although the effect of examinations is again to all intents and purposes unaffected. Since jobs found through the state agency are disproportionately

fixed-term in nature (see Appendix Table 1), and given the strongly positive effect of such jobs on the probability of transitioning into unemployment, it follows that the former result is purely artificial.[17] Interestingly, part-time jobs are 22% less likely than their full-time counterparts to result in unemployment.

The implication of our empirical results is that the effectiveness of the public employment service in Portugal is low. But the observed outcomes are the result of a number of factors that are difficult to disentangle. First, there is the issue of genuine ineffectiveness. Second, the pool of jobs reported to the agency by employers is typically small and comprises low-paying positions that are difficult to fill. In this sense, the public employment service can be likened to a search method of last resort on the part of *employers*. Moreover, employers tend to avoid public employment service placement unless they can obtain some type of subsidy for hiring, say, inexperienced youth and other labour market entrants. **Although the lower-paying and shorter-lasting jobs that result may not be 'attributed' to the public employment service, such employer behavior likely reflects the failure of that agency to provide them with 'good' workers – firms being unable to rely on the referral process as an effective screen. (SCRAP** Both facors – as well as inefficiency per se – hint at potentially severe reputational effects associated with the public employment serice and its clients**.)** Third, there is the active component of employment policy to consider, involving the placement of workers by the state agency in 'occupational employment' programmes (section 2). These are jobs that often pay minimum wages, typically in the public administration sector. Here we may indeed observe employment of last resort. In the event, our results were not sensitive to this potential complicating factor. That is, the pattern of coefficient estimates was not materially affected when we netted out (i.e. removed from the sample) jobs paying minimum wages, or for that matter

when we excluded the public administration sector. Fourth, as we have seen, all workers who draw unemployment benefits must register with the public employment service, even though that agency does not dispense payments.   Here the selection mechanism involved favours workers who satisfy the eligibility requirement. In this case, selection is likely to go 'the other way' because insured workers have longer work histories and greater attachment to the labour force than an unemployed individual taken at random. In other words, given the fulfillment of the eligibility requirement, and other things equal, they are more likely to find a job than randomly selected individuals. In this light, we think it sensible to offer a reduced-form explanation of the point estimates for public service employment, namely, as viewing them as picking up both a low level of effectiveness and selection problems.

7. Concluding remarks

Perhaps the major finding of this empirical enquiry has been that the public employment service has a low hit rate and leads to jobs that do not last, that are lower paying, and that reward observed human capital attributes conspicuously less than do other job-finding routes. These results do not appear to be ultimately determined by the state agency's role as an instrument of active employment policy, wherein individuals are directed to low-paying jobs or jobs of an employment-of-last-resort nature. Our basic results carry through after netting out minimum wage jobs and/or atypical (i.e. fixed- term contract) jobs.

Nevertheless, an unsettled issue in this enquiry, and perforce all other investigations of this type, is the vexed question of the selection of individuals into public-employment-service directed job search. Given the largely arbitrary nature of the identification restrictions necessary to identify the mechanism at work in the case of the state employment agency – compounded by the computational difficulties of a fully-fledged approach that takes all job search methods into

account – and the deficiencies of the dataset, we have necessarily concluded that our point estimates are to be viewed as a mix of main effects (i.e. inefficiency) and selection. **Further progress on the effectiveness/selection issue necessitates that we obtain a firmer grip on the counterfactual of what would happen to those using the public employment service had they not used that agency. Experimental analysis would seem to be indicated. True experiments are not a panacea, however, for reasons of control group substitution, randomization bias, and incomplete participation of the treatment group. Accordingly, such innovations will still need to be supplemented by non-experimental studies of the type conducted here, albeit armed with better data than is currently available.**

The next issue is the efficacy of the other job search methods and job-finding routes. Although we subscribe to the premise that workers choose those search methods which they perceive as having the greatest return, there is mixed evidence on the success of these methods. To be sure, the crude hit rates for direct search methods and the use of informal networks are higher than those reported in, say, the British literature (e.g. Gregg and Wadsworth, 1996), but the employment gains are muted and do not necessarily translate into higher earnings. We would surmise that these results – including the suggestion of a tradeoff between job search effectiveness, as measured by the frequency of the transitions into employment, and the wage and employment continuity outcomes – reflect the problems of the Portuguese labour market. The concatenation of low rates of unemployment and high long-term employment in Portugal has recently been analysed by Blanchard and Portugal (2001), who ascribe each to stringent job protection legislation and therefore see the problem as being one of low-intensity labour market flows. The low outflow rate from unemployment is a constraint on all job search methods, including of course the public employment service.

Finally, much is expected of the state employment agencies in all member nations under the EU 'employment chapter'. Our analysis suggests suggests that the contribution of the public job broking function to improved labour market outcomes is likely to be modest. This conclusion is reinforced if the main force driving long-term unemployment is a low arrival rate of job offers. On this interpretation, improvements in the public employment service might merely change the position of assisted workers in the queue and not shorten the length of the queue. On the other hand, Portugal's low unemployment rate also means that the pool of high-risk individuals is comparatively small. In principle, the scope for and payoff to carefully targeted active labour market measures is correspondingly elevated.

Footnotes

1. For a useful survey of the literature on job search strategies and the arrival rate of job offers, see Devine and Kiefer (1991).

2. The principal exception is the study by Jones (1989), using an Economist Intelligence Unit survey of approximately some 1,000 unemployed individuals in 1979.

3. Blau and Robins (1990) also suggest that employed search may be more productive than unemployed search, as revealed in their study through higher wage offers (cf. Holzer, 1987). However, unobserved individual heterogeneity may explain this result if employment status signals search ability or effort. As a practical matter, the Portuguese data revealed few overt differences between on- and off-the-job search.

4. In one specification, Gregg and Wadsworth attempt to model the selection of workers into Jobcentre use (alone). The coefficient estimate for the selection term although positive is statistically insignificant, while that for the Jobcentre is to all intents and purposes unaffected (see also Osberg, 1993).

5. Subsequent to our sample period, a number of improvements have been made to the job-broking function and to the maintenance of the job register (see, for example, OECD, 1998, 89, 100-101). The most accessible source of information on contemporary Portuguese labor market initiatives is that country's national employment plan(s) pursuant to the EU 'employment strategy'.

6. Individuals may move into and out of employment within the three-month window of the observation period. An indication that this is not a problem can be obtained by following initially unemployed individuals over the six-quarter period that they remain in the sample. For this sub-

sample of (2,189) individuals, 54% remained unemployed for each of the six quarters, 36.4% were able to find and retain a job, and just 10.4% held more than one job.

7. The survey also identifies those individuals seeking work through private employment agencies. Because of the small numbers using this route (352 out of 16,032 unemployed individuals) it was conflated with the 'other' search methods category.

8. Omitting the self-employed from the longitudinal analysis did not materially alter any of the main results reported below.

9. The wage intervals, in thousands of escudos, and the proportion of workers within each interval are: <51.45 (7.5%), 51.5-56.7 (7.1%), 56.7-66 (13.2%), 66-76 (12.3%), 76-86 (10.9%), 86-96 (10%), 96-107 (9%), 107-158 (14.2%), 158-215 (8%), 215-266 (3.8%), 266-317 (1.7%), 317-374 (1%), and = 374 (1.3%).

10. One source of disparity between the information in the third and fourth columns of Table 1 is that the latter contains some workers who became employed as a result of being contacted by employers (see section 4). However, the numbers involved are small (n = 101).

11. We also re-estimated the piecewise constant hazards regression given in Table 3 (a) for a sample of individuals with a duration of unemployment equal to or greater than 12 months, and (b) for a sample of individuals aged 25 years or more. In the former case, the coefficient estimate for the public employment service was 0.095 (and statistically insignificant); in the latter case, it was -0.133 (statistically significant). In other words, there is no indication that the state agency method ameliorated long-term unemployment and some suggestion that its use was associated with some deterioration in the situation of younger workers.

12. Apart from the results for the public employment agency, we would stress that the balance of our findings largely accord with the literature. This conclusion also holds for the determinants of

search intensity. Maximum likelihood estimates of a truncated Poisson regression model, not reported here, revealed that the number of searches undertaken is positively related to the overall level of unemployment, to the individual's jobless duration, and to unemployment benefit receipt. In addition, labor market entrants use fewer search methods, while the opposite obtains for males and more educated job seekers. Full results are available from the authors upon request.

13. We also re-estimated each equation by type of contract. The wage disadvantage associated with job finding through the public employment service attached to fixed-term contracts and open-ended employment alike. In short, the public agency wage effect is not an artifact of public employment schemes.

14. When the earnings function was estimated across job finding method, the most notable result was the differential return to human capital for jobs secured through the public employment service. Without exception, the coefficient estimates for vocational training, schooling, tenure, and experience were consistently lower for this job-finding route. Results are again available upon request.

15. Data on mean tenure from the stock sample confirm this. Jobs secured through the public employment service have a mean tenure of 3.3 years, considerably lower than for the direct approach (9.7 years), the informal mechanism of friends and relatives (9.8 years), advertisements (8.1 years), employer solicitations (7.1 years), 'other' methods (9.7 years), and examinations (14 years).

16. A direct evaluation of transitions from unemployment to employment and back to unemployment by job search/finding method is ruled out by sample size considerations.

17. When separate hazard functions are estimated by type of contract, the instability effect of jobs located through the public employment agency persists.

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Table 1 Job search method and job-finding success among the unemployed, 1992-96

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Job search method	Number using search method in $t-1$	Number (%) finding job in t		Number (%) using a job search method in $t-1$ that report job finding via that method in t		Number employed by job finding method in t
Direct approach	7,138	1,211	(17.0%)	305	(4.3%)	501
Friends/relatives	7,942	1,191	(15.0)	597	(7.5)	1,067
Advertisement	5,485	755	(13.8)	106	(1.9)	151
Public employment agency	8,325	1,132	(13.6)	124	(1.5)	154
Self-employment	151	25	(16.6)	20	(13.2)	179
Examinations	2,061	275	(13.3)	29	(1.4)	113
Other	924	171	(18.5)	11	(1.2)	116

Average number of search methods = 2.05
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Notes: See text

Source: Inquérito ao Emprego.

Table 2 The probability of escaping unemployment by job search method, piecewise constant hazards regression, 1992-96

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Variable	Coefficient
Direct approach	0.219† (0.043)
Friends/relatives	-0.001 (0.043)
Advertisement	-0.038 (0.050)
Public employment agency	-0.052 (0.048)
Self-employment	0.402‡ (0.205)
Examinations	0.180‡ (0.084)
Other	-0.100 (0.066)
UI recipient	-0.200† (0.057)
Schooling	0.028† (0.007)
Tenure	-0.025† (0.005)
Age	-0.012† (0.003)
Male	0.198† (0.044)
Married	0.044 (0.054)
White collar	-0.149† (0.065)
Number of jobs	0.017† (0.003)
First job	-0.409† (0.073)
Collective dismissal	0.114 (0.075)

End fixed-term contract	0.162†
	(0.052)
Year 1993	-0.217†
	(0.073)
Year 1994	-0.054
	(0.072)
Year 1995	-0.257†
	(0.076)
Year 1996	-0.105
	(0.078)
Region A: Algarve	-0.227‡
	(0.096)
Region B: Central	0.036
	(0.084)
Region C: Lisbon	-0.284†
	(0.068)
Region D: North	-0.214†
	(0.069)
Log likelihood	-6284.75
n	16032

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Notes: The baseline hazard function comprises 11 intervals (see text).   Asymptotic standard errors in parentheses.
† and ‡denote statistical significance at the 1% and 5% levels, respectively.

Source: Inquérito ao Emprego

Table 3 The probability of escaping unemployment, disaggregate results, piecewise constant hazards regressions, 1992-96

	Job Finding Method							
Variable	**Direct approach (491 events)**	**Friends/relatives (1046 events)**	**Advertisement (148 events)**	**Public employment agency (145 events)**	**Self-employment (173 events)**	**Examinations (112 events)**	**Other (114 events)**	**Contacted by employer (101 events)**
UI recipient	-0.146	-0.222†	-0.741†	0.793†	-0.785†	-0.284	-1.127†	0.374*
	(0.112)	(0.081)	(0.247)	(0.197)	(0.192)	(0.319)	(0.315)	(0.217)
Schooling	-0.048†	-0.023‡	0.133†	0.017	0.073‡	0.363†	0.107†	-0.086‡
	(0.017)	(0.010)	(0.024)	(0.029)	(0.023)	(0.030)	(0.027)	(0.042)
Tenure	-0.029†	-0.020†	-0.035*	-0.059‡	-0.011	0.025	-0.047‡	-0.031*
	(0.010)	(0.007)	(0.021)	(0.023)	(0.011)	(0.026)	(0.023)	(0.019)
Age	-0.035†	-0.022†	-0.005	-0.009	0.014	-0.026	0.005	0.013
	(0.006)	(0.004)	(0.011)	(0.010)	(0.009)	(0.020)	(0.012)	(0.011)
Male	0.356†	0.185†	0.242	-0.243	0.864†	-0.173	0.237	-0.164
	(0.095)	(0.064)	(0.170)	(0.175)	(0.171)	(0.204)	(0.195)	(0.214)
Married	0.262‡	-0.163†	-0.012	-0.188	0.964†	0.211	0.011	0.404
	(0.116)	(0.081)	(0.217)	(0.205)	(0.213)	(0.272)	(0.246)	(0.260)
White collar	-0.415‡	-0.013‡	-0.336	0.063	0.030	-0.066	-0.261	-0.326
	(0.162)	(0.096)	(0.235)	(0.255)	(0.212)	(0.309)	(0.272)	(0.414)
Number of jobs	0.019‡	0.017†	-0.001	-0.010	0.016	0.006	-0.012	0.003
	(0.008)	(0.005)	(0.026)	(0.014)	(0.013)	(0.026)	(0.039)	(0.009)
First job	-0.678†	-0.271†	-0.900†	-0.427	-1.036†	0.409	-0.662‡	-1.110
	(0.172)	(0.105)	(0.271)	(0.326)	(0.372)	(0.375)	(0.311)	(0.768)
Collective dismissal	0.517†	-0.039	-0.032	0.067	0.044	-0.095	0.066	-0.018
	(0.141)	(0.116)	(0.317)	(0.323)	(0.229)	(0.632)	(0.348)	(0.426)

End fixed-term contract	0.038	0.155‡	-0.127	0.266	-0.258	0.899†	-0.081	0.801†
	(0.113)	(0.077)	(0.208)	(0.209)	(0.196)	(0.282)	(0.242)	(0.275)
Region A: Algarve	0.250	-0.221	-1.689	-0.531‡	0.121	-0.994*	1.238‡	-1.141‡
	(0.197)	(0.145)	(1.057)	(0.268)	(0.335)	(0.570)	(0.619)	(0.447)
Region B: Central	0.722†	-0.167	0.116	-0.795†	0.227	0.372	0.941	-2.204†
	(0.166)	(0.135)	(0.510)	(0.291)	(0.321)	(0.364)	(0.634)	(0.732)
Region C: Lisbon	-0.195	-0.171*	0.962	-1.823†	-0.100	-0.973†	1.440†	-0.974†
	(0.154)	(0.099)	(0.362)	(0.251)	(0.263)	(0.332)	(0.529)	(0.258)
Region D: North	-0.103	-0.030	0.788‡	-1.823†	-0.271	-0.294	1.435†	-1.543†
	(0.155)	(0.099)	(0.371)	(0.257)	(0.277)	(0.310)	(0.534)	(0.344)
Log likelihood	-2043.27	-3704.52	-758.68	-743.59	-888.83	-493.05	-634.17	-500.41
n	16032	16032	16032	16032	16032	16032	16032	16032

Notes: The job finding categories of self-employment and examinations do not exactly correspond to their counterparts in Tables 1 and 2, while unemployed workers contacted by employers have no job search counterpart. Asymptotic standard errors in parentheses. †, ‡, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Source: Inquérito ao Emprego.

Table 4 Earnings determination by job-finding method, grouped regression, log-normal distribution, 1997
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| | Specification | | | |
Variable				
Intercept	4.706†	2.894†	3.012†	3.022†
	(0.016)	(0.021)	(0.021)	(0.021)
Direct approach	-0.314†	-0.074†	-0.077†	-0.077†
	(0.017)	(0.012)	(0.012)	(0.012)
Friends/relatives	-0.300†	-0.075†	-0.080†	-0.079†
	(0.016)	(0.012)	(0.011)	(0.011)
Advertisement	-0.007	-0.008	-0.004	0.004
	(0.021)	(0.015)	(0.015)	(0.015)
Public employment agency	-0.489†	-0.199†	-0.144†	-0.139†
	(0.026)	(0.018)	(0.018)	(0.018)
Examinations	0.293†	0.128†	0.106†	0.105†
	(0.017)	(0.012)	(0.012)	(0.012)
Contacted by employer	-0.170†	-0.022	-0.005	-0.001
	(0.021)	(0.015)	(0.015)	(0.015)
Vocational training		0.048†	0.040†	0.041†
		(0.008)	(0.008)	(0.008)
Schooling		0.076†	0.074†	0.074†
		(0.001)	(0.001)	(0.001)
Tenure		-	0.010†	0.010†
			(0.001)	(0.001)
Tenure squared		-	-0.0001†	-0.0001†
			(0.00002)	(0.00002)
Experience		0.033†	0.026†	0.027†
		(0.001)	(0.0001)	(0.0001)
Experience squared		-0.0004†	-0.0004†	-0.0004†
		(0.00001)	(0.00001)	(0.00001)
Male		0.208†	0.210†	0.204†
		(0.004)	(0.004)	(0.004)
Fixed-term contract		-	-0.048†	-0.047†
			(0.006)	(0.006)
Full-time employment		0.503†	0.465†	0.455†
		(0.013)	(0.011)	(0.011)
Mining and Manufacturing		0.107†	0.078†	0.081†
		(0.013)	(0.012)	(0.012)
Utilities		0.226†	0.181†	0.187†
		(0.022)	(0.021)	(0.021)

Construction		0.142†	0.153†	0.155†
		(0.013)	(0.013)	(0.013)
Services		0.104†	0.085†	0.090†
		(0.012)	(0.012)	(0.012)
Public administration		0.104†	0.075†	0.079†
		(0.013)	(0.012)	(0.013)
Region A: Algarve		-0.011	-0.019‡	-0.022‡
		(0.009)	(0.009)	(0.009)
Region B: Central		-0.067†	-0.083†	-0.085†
		(0.012)	(0.012)	(0.008)
Region C: Lisbon		0.064†	0.044†	-0.042†
		(0.008)	(0.007)	(0.007)
Region D: North		-0.066†	-0.044†	-0.093†
		(0.008)	(0.007)	(0.007)
Duration		-	-	-0.001†
				(0.0001)
Log likelihood	70337.62	-59609.34	-59013.27	-58450.29
n	30041	30041	30041	30041

Notes: The dependent variable is a categorical measure comprising 13 intervals - see text. Asymptotic standard errors in parentheses. †and ‡ denote statistical significance at the 1% and 5% levels, respectively.

Source: Inquérito ao Emprego

Table 5 Transitions from employment into unemployment 1994-7 by job finding method, constant
        baseline hazard and piecewise constant hazards regressions
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Variable	Specification		
Intercept	-2.434† (0.211)		
Direct approach	-0.044 (0.182)	-0.234* (0.141)	-0.326‡ (0.133)
Friends/relatives	0.087 (0.176)	-0.133 (0.135)	-0.206 (0.126)
Advertisement	0.481‡ (0.206)	0.122 (0.173)	-0.040 (0.167)
Public employment agency	1.521† (0.197)	0.670† (0.161)	0.353‡ (0.153)
Examinations	-1.063† (0.220)	-0.955† (0.191)	-1.078† (0.186)
Contacted by employer	0.739† (0.197)	0.193† (0.162)	0.163 (0.156)
Schooling	-0.085† (0.008)	-0.082† (0.008)	-0.091† (0.008)
Age	−0.042† (0.002)	-0.013† (0.002)	-0.013† (0.002)
Male	-0.185† (0.052)	-0.228† (0.0521	-0.216† (0.052)
Tenure			
< 1 year		-1.889† (0.159)	-2.264† (0.051)
$ 1 # 4 years		-3.304† (0.165)	-3.358† (0.055)
$ 5 # 9 years		-4.185† (0.187)	-4.067† (0.177)
$ 10 # 19 years		-4.380† (0.200)	-4.241† (0.191)
$ 20 years		-4.521† (0.215)	-4.382† (0.207)
Fixed-term contract		–	0.885† (0.061)
Part-time employment		–	-0.202* (0.111)
Log likelihood	-7920.45	-7275.90	-7167.12
n	136184	136184	136184

_____
Notes: The number of transitions from employment into unemployment is 1,521. Asymptotic standard
errors in parentheses. †, ‡, and * denote statistical significance at the 1%, 5%, and 10% levels,
respectively.

Source: Inquérito ao Emprego.

Direct approach

0.15
0.1
0.05
0
0 6 12 18 24 30 36
Unemployment duration (months)

Friends/relatives

0.15
0.1
0.05
0
0 6 12 18 24 30 36
Unemployment duration (months)

Advertisement

0.15
0.1
0.05
0
0 6 12 18 24 30 36
Unemployment duration (months)

Self-employment

0.15
0.1
0.05
0
0 6 12 18 24 30 36
Unemployment duration (months)

Public employment agency

0.15
0.1
0.05
0
0 6 12 18 24 30 36
Unemployment duration (months)

Examinations

0.15
0.1
0.05
0
0 6 12 18 24 30 36
Unemployment duration (months)

Other

0.15
0.1
0.05
0
0 6 12 18 24 30 36
Unemployment duration (months)

Contacted by employer

0.15
0.1
0.05
0
0 6 12 18 24 30 36
Unemployment duration (months)

Fig.1 Hazard functions by job finding method

Appendix Table 1 The probability of being employed under a fixed-term contract (versus open-ended employment) by job-finding method, Logit estimates, 1997

Variable	Coefficient
Intercept	1.754† (0.149)
Direct approach	-0.235† (0.098)
Friends/relatives	-0.374† (0.094)
Advertisement	0.074 (0.119)
Public employment agency	1.544† (0.133)
Examinations	-0.807† (0.104)
Contacted by employer	-0.256‡ (0.127)
Vocational training	-0.074 (0.068)
Schooling	-0.024† (0.005)
Experience	-0.161† (0.004)
Experienced squared	0.002† (0.0001)
Male	-0.044 (0.038)
Mining and Manufacturing	-0.603† (0.104)
Utilities	-0.383* (0.206)
Construction	-0.111 (0.108)
Services	-0.403† (0.101)
Public administration	-0.240‡ (0.107)
Region A: Algarve	-0.475† (0.074)
Region B: Central	-1.326† (0.075)
Region C: Lisbon	-0.770† (0.060)
Region D: North	-1.223† (0.060)
$?^2$	4185.10

_____

Notes: The number of fixed-term contracts is 3,063. Asymptotic standard errors in parentheses. †, ‡, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.
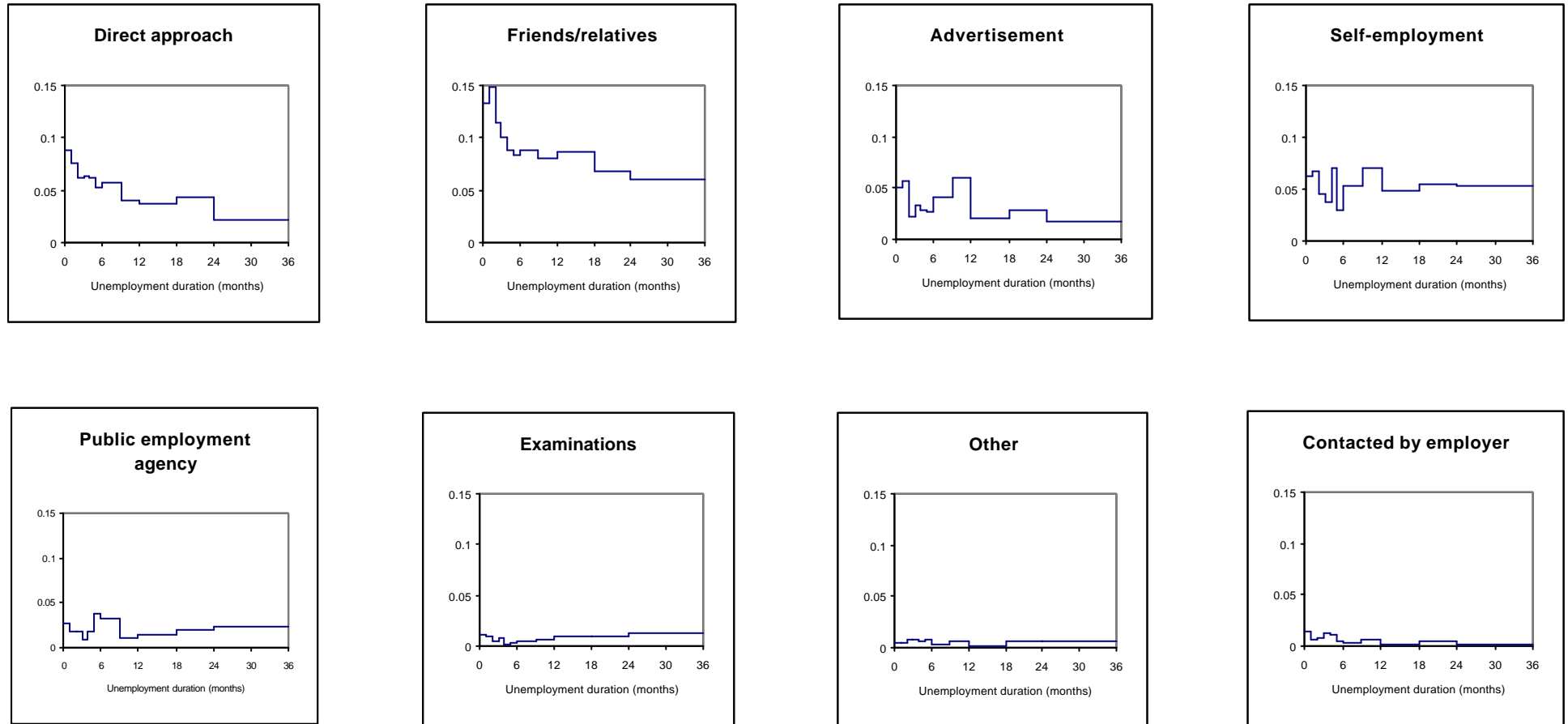
Source: Inquérito ao Emprego.

Appendix Table 2 Earnings determination by job-finding method, OLS regressions, 1998-99

_____

Variable	Specification		

_____

Variable			
Intercept	11.322†	10.212†	10.210†
	(0.109)	(0.148)	(0.147)
Direct approach	-0.314	-0.008	-0.005
	(0.112)	(0.101)	(0.100)
Friends/relatives	-0.124	-0.013	-0.007
	(0.110)	(0.098)	(0.098)
Advertisement	-0.076	0.033	0.021
	(0.133)	(0.118)	(0.117)
Public employment agency	-0.309†	-0.204*	-0.224‡
	(0.119)	(0.107)	(0.107)
Examinations	0.278*	0.344†	0.341†
	(0.143)	(0.128)	(0.127)
Contacted by employer	-0.059	0.022	0.009
	(0.129)	(0.117)	(0.117)
Vocational training		0.135†	0.128‡
		(0.051)	(0.051)
Schooling		0.029†	0.029†
		(0.004)	(0.004)
Year 1998	-0.090†	-0.088†	-0.086†
	(0.035)	(0.030)	(0.030)
Experience		0.007*	0.007*
		(0.004)	(0.004)
Experience squared		-0.00002	-0.00002
		(0.0001)	(0.0001)
Male		0.142†	0.145†
		(0.035)	(0.035)
Fixed-term contract		-	0.086‡

			(0.034)
Full-time employment		0.576†	0.550†
		(0.064)	(0.065)
Mining and Manufacturing		0.042	0.012
		(0.071)	(0.071)
Utilities		0.419‡	0.410‡
		(0.204)	(0.203)
Construction		0.170‡	0.157‡
		(0.073)	(0.073)
Services		0.118*	0.078
		(0.063)	(0.065)
Public administration		0.014	-0.021
		(0.071)	(0.072)
Region A: Algarve		0.097*	-0.109‡
		(0.054)	(0.054)
Region B: Central		0.038	0.052
		(0.071)	(0.071)
Region C: Lisbon		0.055	0.071
		(0.049)	(0.049)
Region D: North		-0.078	-0.060
		(0.047)	(0.047)
R^2	0.055	0.295	0.301
n	656	656	656

Notes: The dependent variable is a continuous wage variable - see text. Asymptotic standard errors in parentheses. †, ‡, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Source: Inquérito ao Emprego

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