



## Exploring the link between employment search time and reservation wages in Southern Europe

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*Recibido: Julio, 2007*

*Aceptado: Mayo, 2008*

### Abstract

In our piece of work we are facing a two-fold problem: on the one hand, we study the behaviour of young job seekers and the extent to which reservation wages and unemployment benefits play a relevant role in the transition into working life. On the other hand, we intend to find out whether the determinants of the job search process may also affect subsequent wages.

We undertake an empirical approach combining one-step estimations with two-step instrumental variables techniques. The data used to this end come from the European Community Household Panel (ECHP) for the period 1995-2001. To be precise, the sub-sample gathers both male and female Southern European (Italian, Greek, Spanish and Portuguese) workers. From the results of the analysis important subtleties arise, particularly related to differences across countries.

*Key words:* Transitions into work, unemployment benefits, reservation wages, earnings.

*JEL Classification:* J31 y J64.

### 1. Introducción

The second half of the 1990s was a period characterised by decreasing unemployment and inflation rates all over the European Union. Despite this positive trend and the potential effect of numerous policy measures intended to make the labour market more flexible<sup>1</sup>, the long-term unemployment rate remained high in most of these countries (Machin and Manning, 1999).

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\* Oscar Marcenaro greatly acknowledges the financial support granted by the Fundación Centro de Estudios Andaluces under research contract ECOD2.07/016.

The costs of these high long-term unemployment rates are considerable both for the individual and society; consequently, understanding the mechanisms that lie behind the unemployment duration is a matter of major concern from both an analytical and a policy perspective.

In the literature to date, reservation wages have been hypothesized to be an important concept for modelling certain relevant aspects of labour market dynamics, particularly unemployment duration. In this sense, to investigate the microeconomic and macroeconomic factors that influence the reservation wage is also of substantial interest. Among these factors, unemployment benefits (UB) have been revealed as a potential factor to explain adjustments to reservation wages and, therefore, changes in unemployment duration. Since generous benefits are expected to raise reservation wages of the unemployed, they should affect the quality of subsequent job matches. Most empirical studies show negative effects of UB on unemployment duration [Devine and Kiefer (1991), Machin and Manning (1999)], i.e. benefits lead to longer unemployment spells<sup>2</sup>, although this effect is rather small. However, to our knowledge, there is no empirical evidence on how this likely correlation specifically affects young adults living in countries with highly similar welfare states. If we can provide policy makers with some quantitative evidence on how powerful the potential correlation is between those variables, we would be contributing to the design of effective policies to help those from the most disadvantaged (in terms of unemployment) age group, i.e. young people, achieve an accurate job-match.

The extent to which UB change unemployment duration would be reflected in the individual's reservation wage<sup>3</sup>. Consequently a comparison of the reservation wages with the actual wages the individual receives once a job is found would also be of interest, in order to analyse the factors affecting the long-term unemployment rate, as this will tell us something about the robustness of the reservation wage as a measure of individual labour preferences<sup>4</sup>.

Thus, among other things, what we intend to answer in this paper is whether the reservation wage is a good indicator of the difficulties in finding a job and whether the existence of unemployment benefits is actually encouraging young adults to stay unemployed. We intend to shed further light on this by estimating simple econometric models for several countries belonging to the European Union (hereinafter EU). More specifically, we gather information for Greece, Italy, Portugal and Spain because of their labour market and welfare state similarities. In fact, these four countries may be classified, on the basis of an assessment of national legislations, among those with very strict employment protection (OECD, 1999) and less generous unemployment benefits, namely the coverage of unemployment insurance and unemployment assistance (the fraction of unemployed receiving some form of UBs) times the average gross replacement rate in the first year of receipt of unemployment benefits (Boeri *et al.* 2004). As our dataset does not provide us with a precise figure on the amount of benefits received by the unemployed, it is absolutely crucial to compare Spain with similar countries in terms of (low) generosity of unemployment benefits. Moreover, due to technical reasons (low expected ratio of response), Eurostat drew a larger sample from Southern European countries which, together with the higher proportion of unemployed workers in these countries, made the sample more representative.

In the same vein, analyzing cross-country differences in the relation between reservation wage and unemployment duration may indicate how labour markets with apparently no major differences in terms of institutions have an effect on the search for a job. Furthermore, as there is typically little variation in the rules and regulations of UB within one country in a relatively short time period, it would be helpful, for identification purposes, to take stock of some cross-country variations as well<sup>5</sup>.

The plan of this paper is as follows. In the next section we describe the literature on reservation wages and unemployment duration. We then move on to present a simple econometric framework to capture the different concepts analysed in this paper (unemployment benefits, reservation wages and unemployment duration), including a discussion of the potential for using unemployment benefits as an instrumental variable. The data are described in Section 4, which complementarily includes a brief portrayal of the institutional framework in the four countries considered. Section 5 reports on the econometric estimation results. Finally, we summarise the main conclusions in Section 6.

## 2. Literature background

The most commonly used theoretical framework for analysing the variables involved in transitions from unemployment to work is the job search model. According to this theory, individuals who want to improve their labour market positions look for a job (which is supposed to be completely characterized by the wage). To put things simply, the unemployed are expected to invest time and resources in a job search given the imperfect information in the labour market about available vacancies. In doing so, they are going to accept only wages which maximise the future flow of income throughout life net of search costs. The optimal stopping rule is given by a certain wage, called reservation wage, which defines the minimum level of income below which the worker will not offer a single hour of his work capacity. A measure of this reservation wage is seldom observed directly; that is why it is usually inferred from the distribution of accepted wages.

In this framework, job opportunities decrease over time for several reasons (state dependence, self-selection, scarring<sup>6</sup>, obsolescence of human capital<sup>7</sup>, etc.), and therefore reservation wages should decrease over time until they reach a reasonable value that matches the available job offers given the elapsed duration of the job search.

In the empirical testing of the job search theory, as far as transitions into work are concerned, we can distinguish between at least two ways of approaching the interrelations between the relevant variables in the model: reduced models and structural approaches. Of the former, the most common approach is to specify hazard functions to estimate transition rates and subsequent wages. Structural models, on the other hand, focus on the relations between the relevant variables of the model, and try to achieve structural estimators that sometimes include information about the demand side [see Woodbury and Davidson (2002)].

Among the papers that provide explicit information on reservation wages and relate this reported variable to the observed duration of the unemployment period, we could mention Lancaster and Chesher (1983), Poterba (1984), Lancaster (1985), Mortensen (1986), Jensen and Westergård-Nielsen (1987), Wolpin (1987), Jones (1988), Kiefer and Neumann (1989), Devine and Kiefer (1991), Gorter and Gorter (1993), Van den Berg and Gorter (1997), Bloemen and Stancanelli (2001) and Prasad (2003). In the following paragraph we summarize some of these contributions.

As an example of papers estimating reduced models, we find, along with many others, Jensen and Westergård-Nielsen (1987) and Wolpin (1987). Jensen and Westergård-Nielsen (1987) specify and estimate a search model, which they apply to the transition from school to work on a very homogeneous data set of law graduates who are looking for their first job. Using maximum likelihood methods, they establish a job search model which allows them to estimate both the transition rates and reservation wages. They estimate the elasticity of offered wages to different features such as previous working experience during the degree and confirm the expected positive link between employment prospects and reservation wages.

As for Wolpin (1987), he does not have direct information about reservation wages but still is able to derive them from both the duration of search and the distribution of observed wages. He finds quite low and decreasing reservation wages and offer probabilities with time.

On the other hand, Gorter and Gorter (1993) construct a structural search model based on the stationary search theory which allows them to compute the elasticity across several relevant variables in the search model (namely, reservation wages, the perception of unemployment benefits and the arrival rate of offers). They tackle simultaneity in the resolution of the main relations between variables by introducing instrumental variables in a two-step least square (2SLS) estimation, where benefits are used as an instrument for reservation wages.

A few years before, Jones (1988) had developed a simple and stationary job search theory to show how (reported) reservation wages and duration of unemployment are interrelated. He used a simultaneous framework by treating the plausible endogeneity of reservation wages on unemployment duration through an instrumental variables approach, which produces interesting and visible changes in the results. He asserts that simultaneity and the control for endogeneity are important in the assessment of reservation wages and duration. What is clear is that, regardless of the relationship between duration and reservation wages, this duration dependence would require longitudinal data to estimate the relevance of reservation wages throughout time. Our study draws on Jones (1988) in that we make use of a model of elapsed duration of unemployment and use reported reservation wages as an explanatory variable both directly and through instruments. His specification is similar to the one in Lancaster (1985) and leads to a log linear relation between both variables of interest. Jones (1988) finds, when addressing endogeneity in the main explanatory variable (reservation wages), that the effect of this is even higher than in the OLS estimation.

It may be argued that hazard models are also useful when unemployment duration is analysed. However, when the estimates rely on the ECHP, OLS estimations are more accu-

rate for at least two reasons: firstly, we cannot observe the starting point of the unemployment episodes (i.e. our measures of unemployment duration is a left censored variable) and thus we cannot conduct a proper duration analysis; secondly, transitions from unemployment to employment are rather sensitive to attrition and recall problems<sup>8</sup>.

As mentioned in the introductory section, this article aims to enlarge the empirical evidence not only on the duration of finding a job but also on wage formation in this job across Southern European youth. In this context, both the returns from human capital investment (wages) and the time spent in and (involuntarily) out of employment are thought of as measures of worker ‘success’<sup>9</sup>. We will briefly analyse this in section 5, following a somewhat similar approach to that undertaken by Prasad (2003), who graphically examines the correlation between reported reservation wages and earnings.

### 3. Econometric model

Following Jones (1988) we use the standard stationary search model, which assumes that the distribution of offers is characterised completely by the wages they entail. Consequently, job offers below a reservation wage are rejected and those exceeding it are accepted. An important assumption is the stationarity of the labour market. This assumption is quite strong, but it makes a structural analysis possible<sup>10</sup>.

As opposed to Kiefer and Neuman (1989) and most of the applied literature on this topic, our data contain an observable measure of the reservation wages. However, other important variables involved in the search model theory, e.g. search costs or discount rates, are not directly observable.

In general, the probability of receiving an offer is assumed to be constant per unit of time. The hazard is given by<sup>11</sup>:

$$\mu = \theta(1-F(r)) \quad (1)$$

where  $r$  represents the reservation wage. Therefore the probability of being employed is the product of the probabilities that an offer is received and that it is accepted.

Following Jones (1988) we assume that the probability of accepting an offer depends on a vector  $X$  of observable personal and regional characteristics and adopts the form:

$$\theta A^\alpha = \exp(X'\beta + u) \quad (2)$$

where  $\beta$  is a parameter vector and  $u$  is an error term.

To test the optimal search theory of positive clear correlation between duration of unemployment and reservation wage, and to obviate the problem of endogeneity between these

two variables, we use a reduced-form instrumental variables estimation approach. A potential variable for instrumenting the reservation wages in the search duration equation is the unemployment benefit<sup>12</sup>, as this could be highly correlated with the reservation wage but with no further influences on the probability of moving from unemployment to employment. Besides, these reservation wages are, broadly speaking, a function of total non-employment related income, including elements that are unaffected by employment status. Thus, it seems plausible to use this as an additional instrument.

Hui (1991) presents a concise summary of the underlying assumptions of the search model and the implications for estimation procedures. He supports the idea that 2SLS is the appropriate technique for estimating a two-equations model of the determinants of reservation wages and duration of unemployment.

Given that we are using a pool of waves, which means that we have repeated observations on interviewees, we need to cluster errors across interviewees. This will result in robust errors in our estimations as a consequence of a Huber/White/Sandwich estimator of variance in place of the traditional calculation. The rationale for this is that observations are independent across groups (interviewees) but not necessarily independent within groups.

#### 4. Data

The information analysed in this paper in large part comes from the European Community Household Panel (ECHP)<sup>13</sup> for the period 1995-2001<sup>14</sup>. We have selected the subsample of workers younger than 40 at the end of the observation period. The main reason for choosing this threshold age is that it is the time of the life cycle at which unemployment rates, particularly for men, tend to stabilise (see figures A1 and A2, Appendix A). This is the result of two trends: the threshold age at which transitions from unemployment into employment become less frequent, as well as the age at which mobility from employment into other situations is at a minimum. From forty years of age onwards, we start observing transitions into unemployment and inactivity that may cause some blurring effects on the main foundation of the job search model we are using in this research<sup>15</sup>.

We have to bear in mind when analysing this dataset that panel data usually suffer from a potential problem of attrition<sup>16</sup> and the ECHP is not an exception. Unfortunately there is little we can do to solve this<sup>17</sup>.

An additional problem we have to face is that there is obviously no way to check the validity of the answers to the question on how long the interviewees have been searching for work. Given that we know that an individual's recall of the length of spells shows a considerable measurement error, as short spells are often forgotten and there is considerable rounding off in answers, we would expect the responses to have considerable measurement errors (see, for example, Torelli and Trivellato, 1993). In this paper we do not use monthly labour market histories because of the many inconsistencies found when this task was undertaken

in the ECHP. Besides, as the other variables are recorded on an annual basis, it is fairly difficult to connect the corresponding figures to each unemployment spell. Thus we use yearly labour market histories, and the data on unemployment duration are expressed in months<sup>18</sup>.

In our analysis we do not control for the level of unemployment compensation as it is *impossible* to precisely know how much the worker received during each month of the unemployment spell. We instead introduce in our estimates a dummy indicator for individuals who, at some point during the unemployment spell, receive some unemployment benefits<sup>19</sup>. As mentioned above, this is the main reason why we restrict our empirical approach to countries with similar (low) levels of unemployment benefits.

Regarding the dependent variables in our estimates, we have to address two different problems: on one hand, the unemployment spells included in the sample are right censored because our data are on elapsed duration from the start of the unemployment spell to the time of survey and consequently represent interrupted spells. This has been accounted for in the empirical approach; the duration of unemployment for those who have been out of the labour force is the sum of the duration of the first unemployment spell and the duration of the spell out of the labour force.

On the other hand, reservation wages are measured by the response to the question *ps007*. We give the question in detail since the precise wording is important: “Minimum net monthly income the person would accept to work the number of hours indicated in *ps002*”<sup>20</sup>. Therefore this information was collected only for individuals who report they are searching for a job.

As regards the exogenous variables, we are using two types of macroeconomic variables. Firstly, we have drawn the gender specific regional unemployment rates from Eurostat<sup>21</sup>. These should be taken as a proxy for aggregate demand conditions. Secondly, we use country dummies and year dummies to control for structural differences across countries and years, as well as for eventual changes in the legislation or in aspects of the economic business cycle we may not grasp with the unemployment rate. The mixing of macro and micro variables is sometimes controversial, and usually macro variables, which may affect different people or people who do not have the right level of disaggregation in a different way, are hardly significant, as will be the case here. Nevertheless, the significance of the regional unemployment rate does not vary when dummy year variables are added to the specifications and for this reason we keep both in the estimates.

Tables 1.1 and 1.2 show summary statistics, distinguishing by gender and countries, for all the variables used in the analysis.

The figures in table 1.1 disclose some well established differences between male and female workers. Men report higher hourly reservation wages (approximately 10% higher) than women and slightly lower unemployment spells (2.15 months on average), despite the fact that, on average, their formal qualification level is lower. Moreover, they are exposed to much lower regional unemployment rates (roughly 9 percentage points lower), regardless of

the time when this is accounted for. Of note is the fact that the amount of hours per week the individual would prefer to work is close to the actual hours reported by those working<sup>22</sup>, which means that the unemployed possibly adapt their expectations to the lack of working time flexibility in the labour market.

Not surprisingly, bearing in mind that we are analysing unemployed youth from Southern Europe, there is a high proportion of men and women staying at home during the unemployment period and the differences between these figures are statistically significant<sup>23</sup>, whereas the fraction of individuals receiving unemployment benefits is virtually the same.

**Table 1**  
**DESCRIPTIVE STATISTICS BY GENDER**

| Variable                                     | Both  |           | Female |           | Male  |           |
|--|-------|-----------|--------|-----------|-------|-----------|
|  | Mean  | Std. Dev. | Mean   | Std. Dev. | Mean  | Std. Dev. |
| Ln (reservation wage) (€ PPP)                | 1.49  | 0.44      | 1.45   | 0.45      | 1.55  | 0.42      |
| Ln (months unemployed)                       | 3.08  | 1.44      | 3.12   | 1.41      | 3.02  | 1.48      |
| Desired working hours                        | 38.82 | 5.81      | 38.09  | 5.98      | 39.67 | 5.48      |
| <b>Age:</b>                                  |       |           |        |           |       |           |
| Age 25-29                                    | 0.29  | 0.46      | 0.29   | 0.45      | 0.30  | 0.46      |
| Age 30-34                                    | 0.17  | 0.37      | 0.16   | 0.37      | 0.17  | 0.38      |
| Age 35-39                                    | 0.04  | 0.19      | 0.04   | 0.19      | 0.03  | 0.18      |
| Married or living with partner               | 0.21  | 0.41      | 0.27   | 0.44      | 0.15  | 0.36      |
| <b>Education level:</b>                      |       |           |        |           |       |           |
| Upper secondary education                    | 0.38  | 0.49      | 0.40   | 0.49      | 0.35  | 0.48      |
| Higher education or equivalent               | 0.14  | 0.35      | 0.17   | 0.38      | 0.11  | 0.31      |
| Living with parents                          | 0.80  | 0.40      | 0.74   | 0.44      | 0.86  | 0.34      |
| Number of children aged 5 or under           | 0.12  | 0.38      | 0.14   | 0.40      | 0.10  | 0.35      |
| Number of children aged 6-14                 | 0.24  | 0.59      | 0.26   | 0.61      | 0.21  | 0.56      |
| Net family income (10 <sup>3</sup> €)        | 15.80 | 12.46     | 16.10  | 12.95     | 15.44 | 11.85     |
| Unemployment benefits dummy                  | 0.11  | 0.31      | 0.10   | 0.31      | 0.11  | 0.31      |
| Household members at work                    | 1.10  | 0.92      | 1.14   | 0.89      | 1.05  | 0.94      |
| <b>Regional unemployment:</b>                |       |           |        |           |       |           |
| Regional unemployment rate on interview date | 19.28 | 9.06      | 23.47  | 9.18      | 14.32 | 5.83      |
| Regional unemployment rate became unem.      | 17.99 | 8.35      | 21.75  | 8.54      | 13.53 | 5.42      |
| Unemployment rate imputation                 | 0.02  | 0.14      | 0.02   | 0.14      | 0.02  | 0.14      |
| Actual wage (t+1)*                           | 4.87  | 2.21      | 4.68   | 2.33      | 5.05  | 2.08      |
| <b>Year dummies:</b>                         |       |           |        |           |       |           |
| Year 1996                                    | 0.17  | 0.38      | 0.17   | 0.38      | 0.17  | 0.38      |
| Year 1997                                    | 0.16  | 0.37      | 0.16   | 0.37      | 0.16  | 0.36      |
| Year 1998                                    | 0.14  | 0.35      | 0.14   | 0.35      | 0.15  | 0.35      |
| Year 1999                                    | 0.13  | 0.34      | 0.13   | 0.34      | 0.13  | 0.34      |
| Year 2000                                    | 0.12  | 0.32      | 0.11   | 0.32      | 0.12  | 0.32      |
| Year 2001                                    | 0.10  | 0.30      | 0.10   | 0.30      | 0.10  | 0.30      |
| <b>Observations</b>                          | 14073 |           | 7617   |           | 6456  |           |

\* The value for this variable is only observed for those unemployed who find a job one year later.

Source: Author's own calculations from ECHP 1995-2001 (sample restricted to unemployed people).



Moving on to the mean values reported in table 1.2, it should be stressed that, in general, there are no huge differences across countries. Nevertheless, some figures require our attention. Reservation wages are identical in Spain and Greece, and by far higher than in Portugal where there are statistically significant differences between men and women (13.9%). On the contrary, Italian unemployed show longer elapsed unemployment spells and higher reservation wages. Similarly, it is the country in this group with the lowest ratio of young adults receiving unemployment benefits. Therefore, even when the four countries are subject to similar welfare protection systems, there is some degree of disparity in the proportion of young unemployed people receiving unemployment benefits. This difference will be exploited in our econometric estimates.

**Table 1.2**  
**DESCRIPTIVE STATISTICS BY COUNTRY AND GENDER**

| Variable  | Italy  |           |       |           | Greece |           |       |           |
|---|--------|-----------|-------|-----------|--------|-----------|-------|-----------|
|   | Female |           | Male  |           | Female |           | Male  |           |
|   | Mean   | Std. Dev. | Mean  | Std. Dev. | Mean   | Std. Dev. | Mean  | Std. Dev. |
| <b>Ln (reservation wage) (€ PPP)</b>                | 1.69   | 0.32      | 1.72  | 0.31      | 1.37   | 0.56      | 1.44  | 0.61      |
| <b>Ln (months unemployed)</b>                       | 3.59   | 1.30      | 3.63  | 1.31      | 3.10   | 1.27      | 2.97  | 1.37      |
| <b>Desired working hours</b>                        | 36.60  | 5.74      | 38.83 | 4.93      | 38.52  | 6.69      | 39.51 | 7.25      |
| <b>Age:</b>   |        |           |       |           |        |           |       |           |
| Age 25-29   | 0.29   | 0.45      | 0.31  | 0.46      | 0.30   | 0.46      | 0.35  | 0.48      |
| Age 30-34   | 0.16   | 0.37      | 0.16  | 0.37      | 0.14   | 0.34      | 0.16  | 0.36      |
| Age 35-39   | 0.04   | 0.19      | 0.03  | 0.17      | 0.03   | 0.18      | 0.03  | 0.18      |
| <b>Married or living with partner</b>               | 0.19   | 0.39      | 0.10  | 0.30      | 0.27   | 0.44      | 0.12  | 0.32      |
| <b>Education level:</b>                             |        |           |       |           |        |           |       |           |
| <b>Upper secondary education</b>                    | 0.53   | 0.50      | 0.41  | 0.49      | 0.55   | 0.50      | 0.50  | 0.50      |
| <b>Higher education or equivalent</b>               | 0.09   | 0.29      | 0.06  | 0.24      | 0.22   | 0.42      | 0.15  | 0.36      |
| <b>Living with parents</b>                          | 0.82   | 0.38      | 0.91  | 0.29      | 0.76   | 0.43      | 0.90  | 0.30      |
| <b>Number of children aged 5 or under</b>           | 0.10   | 0.35      | 0.06  | 0.28      | 0.12   | 0.38      | 0.08  | 0.34      |
| <b>Number of children aged 6-14</b>                 | 0.19   | 0.49      | 0.16  | 0.46      | 0.23   | 0.57      | 0.11  | 0.37      |
| <b>Net family income (10<sup>3</sup> €)</b>         | 17.34  | 11.77     | 16.25 | 11.87     | 14.51  | 11.32     | 13.64 | 9.58      |
| <b>Unemployment benefits dummy</b>                  | 0.03   | 0.17      | 0.03  | 0.16      | 0.10   | 0.31      | 0.12  | 0.32      |
| <b>Household members at work</b>                    | 1.07   | 0.85      | 0.99  | 0.90      | 1.25   | 0.88      | 1.15  | 0.94      |
| <b>Regional unemployment:</b>                       |        |           |       |           |        |           |       |           |
| <b>Regional unemployment rate on interview date</b> | 25.98  | 8.88      | 16.06 | 5.37      | 17.34  | 2.04      | 7.77  | 1.51      |
| <b>Regional unemployment rate became unem.</b>      | 23.95  | 7.90      | 14.30 | 4.31      | 14.85  | 1.70      | 7.03  | 1.38      |
| <b>Unemployment rate imputation</b>                 | 0.01   | 0.08      | 0.01  | 0.09      | 0.02   | 0.15      | 0.02  | 0.13      |
| <b>Actual wage (t+1)*</b>                           | 6.03   | 2.37      | 6.05  | 1.85      | 3.89   | 1.85      | 3.99  | 1.55      |
| <b>Year dummies: Year 1996</b>                      | 0.15   | 0.36      | 0.15  | 0.36      | 0.19   | 0.39      | 0.15  | 0.35      |
| Year 1997   | 0.14   | 0.35      | 0.14  | 0.35      | 0.16   | 0.37      | 0.16  | 0.36      |
| Year 1998   | 0.16   | 0.37      | 0.15  | 0.36      | 0.12   | 0.32      | 0.14  | 0.35      |
| Year 1999   | 0.15   | 0.35      | 0.15  | 0.36      | 0.12   | 0.33      | 0.13  | 0.34      |
| Year 2000   | 0.13   | 0.33      | 0.13  | 0.34      | 0.11   | 0.32      | 0.14  | 0.35      |
| Year 2001   | 0.12   | 0.32      | 0.12  | 0.32      | 0.09   | 0.29      | 0.10  | 0.30      |
| <b>Observations</b>                                 | 2867   |           | 2.996 |           | 1491   |           | 913   |           |

\* The value for this variable is only observed for those unemployed who find a job one year later.

Source: Author's own calculations from ECHP 1995-2001 (sample restricted to unemployed people).

**Table 1.2 (continued)**  
**DESCRIPTIVE STATISTICS BY COUNTRY AND GENDER**

| Variable                                     | Spain  |           |       |           | Portugal |           |       |           |
|--|--------|-----------|-------|-----------|----------|-----------|-------|-----------|
|  | Female |           | Male  |           | Female   |           | Male  |           |
|  | Mean   | Std. Dev. | Mean  | Std. Dev. | Mean     | Std. Dev. | Mean  | Std. Dev. |
| Ln (reservation wage) (€ PPP)                | 1.37   | 0.34      | 1.44  | 0.32      | 0.99     | 0.35      | 1.12  | 0.41      |
| Ln (months unemployed)                       | 2.75   | 1.46      | 2.33  | 1.42      | 2.65     | 1.35      | 2.26  | 1.25      |
| Desired working hours                        | 39.14  | 5.86      | 40.91 | 5.41      | 39.48    | 4.38      | 40.19 | 3.76      |
| Age:   |        |           |       |           |          |           |       |           |
| Age 25-29                                    | 0.31   | 0.46      | 0.29  | 0.45      | 0.21     | 0.41      | 0.20  | 0.40      |
| Age 30-34                                    | 0.18   | 0.38      | 0.19  | 0.40      | 0.17     | 0.37      | 0.12  | 0.32      |
| Age 35-39                                    | 0.04   | 0.19      | 0.04  | 0.19      | 0.06     | 0.24      | 0.02  | 0.15      |
| Married or living with partner               | 0.30   | 0.46      | 0.23  | 0.42      | 0.48     | 0.50      | 0.19  | 0.39      |
| Education level:                             |        |           |       |           |          |           |       |           |
| Upper secondary education                    | 0.24   | 0.43      | 0.23  | 0.42      | 0.21     | 0.40      | 0.18  | 0.38      |
| Higher education or equivalent               | 0.28   | 0.45      | 0.17  | 0.37      | 0.05     | 0.21      | 0.03  | 0.18      |
| Living with parents                          | 0.70   | 0.46      | 0.80  | 0.40      | 0.60     | 0.49      | 0.85  | 0.36      |
| Number of children aged 5 or under           | 0.16   | 0.42      | 0.14  | 0.41      | 0.29     | 0.52      | 0.13  | 0.44      |
| Number of children aged 6-14                 | 0.29   | 0.62      | 0.28  | 0.64      | 0.50     | 0.88      | 0.42  | 0.85      |
| Net family income (10 <sup>3</sup> €)        | 16.72  | 15.74     | 15.48 | 12.79     | 12.63    | 8.67      | 13.65 | 10.84     |
| Unemployment benefits dummy                  | 0.19   | 0.39      | 0.22  | 0.41      | 0.15     | 0.36      | 0.09  | 0.29      |
| Household members at work                    | 1.04   | 0.90      | 0.99  | 0.95      | 1.48     | 0.95      | 1.49  | 1.00      |
| Regional unemployment:                       |        |           |       |           |          |           |       |           |
| Regional unemployment rate on interview date | 29.06  | 5.53      | 16.57 | 4.15      | 8.50     | 2.81      | 6.08  | 2.88      |
| Regional unemployment rate became unem.      | 27.60  | 4.89      | 16.95 | 4.34      | 8.48     | 2.56      | 6.25  | 2.69      |
| Unemployment rate imputation                 | 0.01   | 0.08      | 0.03  | 0.17      | 0.10     | 0.29      | 0.05  | 0.22      |
| Actual wage (t+1)*                           | 4.96   | 2.22      | 5.24  | 2.09      | 2.98     | 1.51      | 3.26  | 1.30      |
| Year dummies: Year 1996                      | 0.19   | 0.39      | 0.22  | 0.42      | 0.17     | 0.38      | 0.18  | 0.38      |
| Year 1997                                    | 0.17   | 0.37      | 0.18  | 0.38      | 0.18     | 0.38      | 0.16  | 0.36      |
| Year 1998                                    | 0.13   | 0.34      | 0.14  | 0.35      | 0.17     | 0.38      | 0.15  | 0.35      |
| Year 1999                                    | 0.12   | 0.33      | 0.10  | 0.30      | 0.14     | 0.35      | 0.13  | 0.34      |
| Year 2000                                    | 0.11   | 0.31      | 0.09  | 0.29      | 0.08     | 0.27      | 0.10  | 0.31      |
| Year 2001                                    | 0.09   | 0.29      | 0.07  | 0.26      | 0.10     | 0.30      | 0.08  | 0.27      |
| Observations                                 | 2490   |           | 2088  |           | 769      |           | 459   |           |

\* The value for this variable is only observed for those unemployed who find a job one year later.

Source: Author's own calculations from ECHP 1995-2001 (sample restricted to unemployed people).

Turning to Portugal, the proportion of young married women (almost half of the sample) seems to be particularly striking, which translates into higher number of children and probably into low levels of participation in Higher Education. Despite these figures, Portugal shows the lowest regional unemployment rate.

The important differences between Portugal and the rest of Southern European countries coming out of the unconditioned figures may be based on some of the results we have drawn from the econometric approach. Thus, we will pay more attention to these potential differences in section 5.

Before discussing the results of the empirical approach, in the next subsection we will give a general overview of the labour market institutional framework in each of the countries considered in this paper.

#### 4.1. Institutional framework

The institutional framework in Southern European countries is defined both by the education system and the welfare regime. The former is weakly connected to the employment system<sup>24</sup>. The low incidence of apprenticeships and vocational training schemes hinders smooth entry into the labour market and results in (with the exception of Portugal) long initial search processes in the labour market.

The welfare regime has a strong insurance component and a residual assistance component. Thus, according to Esping-Andersen (1999)<sup>25</sup> welfare regimes typology, the “Olive Belt” countries are a subtype of conservative corporatism (the “Mediterranean” fourth world), characterised by a welfare state similar to the social insurance model but for extreme familialism, together with high employment protection and a dualization of the labour markets. To illustrate this classification we provide the following indicators:

- a) Universal income support measures (national statutory minimum income schemes, child-benefit packages, family allowances) are either nonexistent or amongst the least generous in the European Union during the period of observation (Flaquer, 2000).
- b) Living arrangements in Southern Europe share particularities as well: young people tend to cohabit with their parents in a very high proportion (Aassve *et al*, 2002; Chiuri and Del Boca, 2007) and the commonest reason to leave the parental nest is the formation of a new family. But intergenerational dependency in Southern Europe also happens at the end of the lifecycle (Flaquer, 2000) and we expect to find some young adults who may be responsible for their elderly relatives as well.
- c) The countries in our study have been characterised by a traditionally strong employment protection and recent reforms enhancing flexibility *at the margin* of the labour market. This has meant a dualization of the labour market with a core sector of highly protected workers against redundancy and unemployment and newcomers working *at the margin* either via temporary contracts (Spain), self-employment or family-work (Greece), irregular employment (particularly Greece and Italy but also Spain), low wage employment, long hours, etc. This excludes young people from the core of the employment protection system and explains why the familization of the welfare of young adults is more pronounced in Southern Europe than in the rest (Aassve *et al*, 2002).

These features of the labour market will help us to explain some of the results we have found in the empirical approach presented in the next section.

## 5. The Empirical Results

### 5.1. Determinants of the reservation wages

Before analysing in depth the results of the first set of estimates (those focused on the reservation wage equations), a previous issue is that of the incidence of non-response to reservation wages. In our dataset this rate is below 13%. Although it cannot be considered as a particularly high non-response rate, we have tried to check whether there is a pattern in non-response to this question, as in Prasad (2003)<sup>26</sup>. Given that reservation wages may be taken as a sensitive question, there might be certain groups more likely to avoid answering that question than others. We have tested several instruments<sup>27</sup> in order to control for the potential endogeneity that this selection bias produces. The tests for this plausible selection problem are available from the authors upon request, but none of them showed a significant selection as regards this variable.

An additional key question in this type of empirical approach is how to take into account that, due to the wording of the questions in the survey, the stated reservation wage is conditioned by the reported number of expected working hours. There are three possible alternatives to address this problem. We can transform the reservation wage into an hourly reservation wage, or include the number of expected hours of work among the regressors, or both. The results stated henceforth rely on hourly reservation wages as dependent variable, excluding expected (desired) working hours as regressor.

As a result of the differences revealed by the descriptive statistics, the regressions are performed by gender and country. We report two different specifications in order to control the problems stemming from the possible correlation between number of workers in the household and household incomes (specification II seems to be the most satisfactory).

In tables 2.1 and 2.2 we present the results of these specifications for the reservation wage equation.

Table 2.1 shows that reservation wages are higher for “older workers”<sup>28</sup>, although the effect is slightly lower for the 35-39 age group than for 30-34, i.e. there is an inverted U-shaped relation. This could reflect that age may be taken as a proxy for experience in the labour market and, consequently, the positive value of the age group coefficients should be considered as a measure of the premium associated with higher experience levels, which reach a maximum at age 35-39.

Marital status is only significant for unemployed men. This may be because marital status is more connected to being the head of the household for men than for women, which means a stronger pressure for men to get a higher wage if married. Nevertheless this coefficient is only significant for Spain when separated regressions by country are undertaken (table 2.2).

Higher educational levels make the individual more demanding, and this is reflected in the reservation wage. A similar result is also found by Böheim (2002) for the case of UK,

whilst Haurin and Sridhar (2003) and Heywood and White (1990) found similar results using years of education instead of levels. More specifically, for university graduates we show that reservation wages are about 19% (17.7% for men and 20.0% for women) higher than for workers with only general schooling, controlling for other characteristics. These figures are almost threefold in the case of Portuguese unemployed. This result is consistent with the well documented higher rate of return to education in Portugal than in other European countries (Heinrich and Hildebrand (2005), also using the ECHP). The most common explanation for this high return is the still lower human capital stock in this country.

Living with parents is much less relevant for explaining reservation wages for women than for men, and becomes insignificant for women when the number of household members at work is controlled for. A potential reason for this is that the experience of unemployment is much more associated by (young) men to remaining in the parental home, whereas in the case of women this is not necessarily the case. In other words, men, unlike women, probably consider finding a job as a way of leaving their parents' home and possibly as a way of living their own lives.

Having children aged 5 or younger does not show any significance in the determination of reservation wages. An explanation for this lack of significance is the potential confluence of two driving forces in opposite directions: if a person looks after young offspring in a household, (s)he might be more demanding with the available options in the market given that (s)he has a time constraint in his/her supply of labour. This means a raise in his/her reservation wage. But at the same time, if there are children and if there are an array of people at home who could do that, the one who would eventually devote time to this task would be the one whose time is less valuable in the market, and therefore the one whose reservation wage is lower.

Conversely, the presence of children aged 6-14 shows a statistically significant impact on the determination of the reservation wages, and there seems to be differences between men and women in this aspect. In fact, this variable has less effect on women's reservation wages than on men's. This reflects the contrasting nature of the relation between labour supply and the presence of children amongst men and women. In the case of men, children represent a burden that increases the direct cost of a job search and diminishes the return to the time spent on a job search. It therefore reduces reservation wages and forces quicker acceptance of job offers. But for women, in keeping with our previous argument, the presence of children is not only an economic burden but also a constraint in the allocation of time to the labour market and ends up in a smaller decrease of reservation wages. Summarizing, a substantial degree of specialization still persists between men and women in family life.

An important result arising from our estimates of the reservation wage equation is that the unemployment benefits dummy variable is much more relevant in the case of women than men. If we take reservation wages as a proxy of the individual's restrictions on accepting a job, we could assert that unemployment benefits act as a disincentive, in the case of women, to accept any job and in this sense would enhance job market frictions.

Nevertheless this correlation holds only for Italy and Spain in country-specific regressions (table 2.2). What it is more, Portugal registers a somewhat peculiar result; a plausible explanation is the well known nominal wage flexibility in this country, which contrasts with the overall regulation of the labour market; likewise, the unemployment benefits are less generous than in the rest of the countries under evaluation. The profile of the Portuguese job seeker in the sample is slightly younger and essentially less qualified than in the rest of the countries (as may be inferred from table 1.2), which could mean that UB beneficiaries may be amongst the least demanding job seekers.

Agents in households with higher levels of wealth may have better access to financial instruments to insure against labour income risk and would, therefore, tend to have higher reservation wages. In other words, unemployed in wealthier families tend to be choosier when looking for a job. However, strong social networks among wealthy people provide a way of getting a higher arrival rate of job offers, which would counterbalance the former effect (Rendon, 2006) and would simultaneously result in a higher reservation wage and a shorter unemployment spell. Our results support this argument except in the case of Greece, where the coefficient for this variable is insignificant although still positive. Similarly, Bloemen and Stancanelli (2001), using a sample drawn from the population of Dutch households, conclude that there is a positive and significant impact on the reservation wage<sup>29</sup>.

As mentioned above, we have tested several specifications for approaching household income. Apart from the *per capita* (OECD scale modified) household income, we have tested the explanatory power of the number of employed adults in the household (specification II). The effect of this variable is not significant for men but significant and negative for women. In the case of men, the effect of number of employed people in the household is stronger than for the income variable, since the former is a proxy for both income and social networks. The surprising behaviour of this variable amongst women may be due to the fact that, in a household with several employed people, men benefit more from employment opportunities, potentially due to the social networks the employed household members provide. For women the effect might be different, with women remaining in unemployment and contributing to household production if they are the “less valuable member of the family” (i.e. earn a lower wage) in the labour market. These results provide additional support to the above mentioned argument on the substantial degree of specialization that still persists between men and women in household production, mainly in Southern European countries.

Additional control variables for the reservation wage equation include year dummy variables and a flag dummy variable intended to capture the fact that, for a few regions where the unemployment rate was missing, we used the national unemployment rate.

The goodness of fit ( $R^2$ ) achieved in the estimation of reservation wages fluctuates across specifications but is always above 24%<sup>30</sup>. This appears to be reasonable, given the subjective nature of the dependent variable and that, when earning functions are estimated for actual wages,  $R^2$  does not show much higher values (between 30% and 45%).

**Table 2.1**  
**DETERMINANTS OF THE RESERVATION WAGES, ALL COUNTRIES**

|   | Specification I      |                      |                      | Specification II     |                      |                      |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|   | Both                 | Female               | Male                 | Both                 | Female               | Male                 |
| <b>Female</b>                               | -0.094***<br>(0.009) |                      |                      | -0.093***<br>(0.009) |                      |                      |
| <b>Age group:</b>                           |                      |                      |                      |                      |                      |                      |
| <b>Age 25-29</b>                            | 0.055***<br>(0.008)  | 0.052***<br>(0.011)  | 0.057***<br>(0.013)  | 0.051***<br>(0.008)  | 0.047***<br>(0.011)  | 0.056***<br>(0.013)  |
| <b>Age 30-34</b>                            | 0.078***<br>(0.011)  | 0.083***<br>(0.017)  | 0.069***<br>(0.015)  | 0.072***<br>(0.011)  | 0.073***<br>(0.017)  | 0.067***<br>(0.016)  |
| <b>Age 35-39</b>                            | 0.076***<br>(0.022)  | 0.082**<br>(0.032)   | 0.063**<br>(0.027)   | 0.068***<br>(0.022)  | 0.070**<br>(0.032)   | 0.060**<br>(0.027)   |
| <b>Married or living with partner</b>       | 0.029*<br>(0.016)    | 0.020<br>(0.021)     | 0.053**<br>(0.023)   | 0.033**<br>(0.016)   | 0.029<br>(0.022)     | 0.054**<br>(0.023)   |
| <b>Educational level:</b>                   |                      |                      |                      |                      |                      |                      |
| <b>Upper secondary education</b>            | 0.052***<br>(0.008)  | 0.065***<br>(0.011)  | 0.034***<br>(0.012)  | 0.051***<br>(0.008)  | 0.065***<br>(0.011)  | 0.033***<br>(0.012)  |
| <b>Higher education or equivalent</b>       | 0.188***<br>(0.013)  | 0.200***<br>(0.016)  | 0.177***<br>(0.022)  | 0.187***<br>(0.013)  | 0.199***<br>(0.016)  | 0.176***<br>(0.022)  |
| <b>Living with parents</b>                  | -0.050***<br>(0.015) | -0.038*<br>(0.021)   | -0.077***<br>(0.021) | -0.046***<br>(0.015) | -0.029<br>(0.021)    | -0.076***<br>(0.021) |
| <b>Number of children aged 5 or under</b>   | -0.008<br>(0.010)    | -0.009<br>(0.012)    | -0.014<br>(0.015)    | -0.009<br>(0.010)    | -0.010<br>(0.012)    | -0.014<br>(0.015)    |
| <b>Number of children aged 6-14</b>         | -0.027***<br>(0.006) | -0.020**<br>(0.008)  | -0.038***<br>(0.008) | -0.026***<br>(0.006) | -0.019**<br>(0.008)  | -0.038***<br>(0.008) |
| <b>Net Family income (10<sup>3</sup> €)</b> | 0.002***<br>(0.000)  | 0.002***<br>(0.000)  | 0.002***<br>(0.000)  | 0.003***<br>(0.000)  | 0.002***<br>(0.000)  | 0.003***<br>(0.001)  |
| <b>Unemployment benefits dummy</b>          | 0.028***<br>(0.012)  | 0.042***<br>(0.017)  | 0.007<br>(0.015)     | 0.028***<br>(0.004)  | 0.043***<br>(0.017)  | 0.002**<br>(0.001)   |
| <b>Regional unemployment rate</b>           | 0.001**<br>(0.001)   | 0.001<br>(0.001)     | 0.002**<br>(0.001)   | 0.001**<br>(0.001)   | 0.000<br>(0.001)     | 0.002**<br>(0.001)   |
| <b>Year dummy variables</b>                 | ✓                    | ✓                    | ✓                    | ✓                    | ✓                    | ✓                    |
| <b>Country:</b>                             |                      |                      |                      |                      |                      |                      |
| <b>Italy</b>                                | 0.316***<br>(0.008)  | 0.335***<br>(0.012)  | 0.294***<br>(0.011)  | 0.316***<br>(0.008)  | 0.335***<br>(0.012)  | 0.294***<br>(0.011)  |
| <b>Greece</b>                               | 0.010<br>(0.015)     | 0.004<br>(0.019)     | 0.019<br>(0.025)     | 0.013<br>(0.015)     | 0.008<br>(0.019)     | 0.020<br>(0.025)     |
| <b>Portugal</b>                             | -0.294***<br>(0.017) | -0.324***<br>(0.022) | -0.250***<br>(0.025) | -0.288***<br>(0.017) | -0.316***<br>(0.023) | -0.247***<br>(0.025) |
| <b>Household members at work</b>            |                      |                      |                      | -0.015***<br>(0.004) | -0.024***<br>(0.006) | -0.006<br>(0.006)    |
| <b>Constant</b>                             | 1.295***<br>(0.020)  | 1.195***<br>(0.030)  | 1.318***<br>(0.030)  | 1.302***<br>(0.020)  | 1.210***<br>(0.030)  | 1.321***<br>(0.030)  |
| <b>Observations</b>                         | 14073                | 7617                 | 6456                 | 14073                | 7617                 | 6456                 |
| <b>R<sup>2</sup></b>                        | 0.27                 | 0.29                 | 0.24                 | 0.27                 | 0.29                 | 0.24                 |

The dependent variable is the logarithm of the hourly reservation wage. Baseline category: Age 16-24, less than upper secondary education, single, widow or divorced, living away from parents' home, no children, Spain. Year dummy variables are included and a flag variable for imputed values in the regional unemployment variable. Robust standard errors in parentheses; \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 2.2  
DETERMINANTS OF THE RESERVATION WAGES, BY COUNTRY

|                                       | Greece              |                     |                     |                     |                     |                     |                     |
|---------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                       | Italy               |                     |                     | Greece              |                     |                     |                     |
|                                       | Specification I     |                     | Specification II    | Specification I     |                     | Specification II    |                     |
|                                       | Female              | Male                | Female              | Male                | Female              | Male                |                     |
| <b>Age group: Age 25-29</b>           | 0.029*<br>(0.016)   | 0.034**<br>(0.015)  | 0.025<br>(0.016)    | 0.034**<br>(0.016)  | 0.053<br>(0.034)    | 0.049<br>(0.051)    | 0.068<br>(0.051)    |
| Age 30-34                             | 0.018<br>(0.019)    | 0.059***<br>(0.022) | 0.011<br>(0.019)    | 0.059***<br>(0.023) | 0.191***<br>(0.064) | 0.178***<br>(0.063) | 0.144**<br>(0.062)  |
| Age 35-39                             | 0.014<br>(0.038)    | 0.055<br>(0.044)    | 0.006<br>(0.039)    | 0.054<br>(0.045)    | 0.235*<br>(0.137)   | 0.217<br>(0.136)    | 0.003<br>(0.086)    |
| Married or living with partner        | 0.032<br>(0.034)    | 0.002<br>(0.036)    | 0.035<br>(0.034)    | 0.002<br>(0.036)    | -0.083<br>(0.072)   | -0.072<br>(0.072)   | 0.028<br>(0.094)    |
| <b>Educational level:</b>             |                     |                     |                     |                     |                     |                     |                     |
| Upper secondary education             | 0.073***<br>(0.015) | 0.030**<br>(0.014)  | 0.071***<br>(0.015) | 0.030**<br>(0.014)  | 0.008<br>(0.036)    | 0.010<br>(0.036)    | -0.011<br>(0.053)   |
| Higher education or equivalent        | 0.295***<br>(0.032) | 0.251***<br>(0.041) | 0.292***<br>(0.032) | 0.251***<br>(0.041) | 0.132***<br>(0.045) | 0.129***<br>(0.046) | 0.167***<br>(0.085) |
| Living with parents                   | -0.017<br>(0.033)   | -0.052<br>(0.032)   | -0.016<br>(0.034)   | -0.052<br>(0.032)   | -0.048<br>(0.068)   | -0.029<br>(0.070)   | -0.074<br>(0.075)   |
| Number of children aged 5 or under    | 0.010<br>(0.017)    | -0.005<br>(0.026)   | 0.010<br>(0.017)    | -0.005<br>(0.026)   | -0.001<br>(0.044)   | -0.000<br>(0.044)   | 0.025<br>(0.062)    |
| Number of children aged 6-14          | -0.011<br>(0.013)   | -0.026*<br>(0.015)  | -0.011<br>(0.013)   | -0.026*<br>(0.014)  | 0.009<br>(0.033)    | 0.009<br>(0.032)    | -0.064<br>(0.044)   |
| Net Family income (10 <sup>3</sup> €) | 0.001*<br>(0.001)   | 0.002***<br>(0.001) | 0.002***<br>(0.001) | 0.002***<br>(0.001) | 0.001<br>(0.001)    | 0.001<br>(0.001)    | 0.002<br>(0.002)    |
| Unemployment benefits dummy           | 0.029**<br>(0.013)  | -0.036<br>(0.036)   | 0.031**<br>(0.012)  | -0.036<br>(0.036)   | 0.052<br>(0.063)    | 0.052<br>(0.062)    | 0.011<br>(0.059)    |
| Regional unemployment rate            | 0.002***<br>(0.001) | 0.003**<br>(0.001)  | 0.002***<br>(0.001) | 0.003**<br>(0.001)  | 0.000<br>(0.006)    | -0.001<br>(0.006)   | 0.019<br>(0.013)    |
| Year dummy variables                  | ✓                   | ✓                   | ✓                   | ✓                   | ✓                   | ✓                   | ✓                   |
| Household members at work             |                     |                     | -0.016*<br>(0.009)  | -0.002<br>(0.009)   |                     | -0.033*<br>(0.019)  | 0.014<br>(0.022)    |
| Constant                              | 1.501***<br>(0.040) | 1.622***<br>(0.040) | 1.512***<br>(0.041) | 1.623***<br>(0.041) | 1.263***<br>(0.118) | 1.298***<br>(0.117) | 1.178***<br>(0.121) |
| Observations                          | 2867                | 2996                | 2867                | 2996                | 1491                | 1491                | 913                 |
| R <sup>2</sup>                        | 0.10                | 0.07                | 0.10                | 0.07                | 0.07                | 0.07                | 0.06                |

The dependent variable is the logarithm of the hourly reservation wage. OLS estimates. Baseline category: Age 16-24, less than upper secondary education, single, widow or divorced, living away from parents' home, no children. Year dummy variables and a flag variable for imputed values in the regional unemployment variable are included. Robust standard errors in parentheses; \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.



Table 2.2 (continued)  
DETERMINANTS OF THE RESERVATION WAGES, BY COUNTRY

|                                       | Italy                |                      |  |                      |                      |  | Greece               |                      |  |                      |                      |  |
|---------------------------------------|----------------------|----------------------|--|----------------------|----------------------|--|----------------------|----------------------|--|----------------------|----------------------|--|
|                                       | Specification I      |                      |  | Specification II     |                      |  | Specification I      |                      |  | Specification II     |                      |  |
|                                       | Female               | Male                 |  | Female               | Male                 |  | Female               | Male                 |  | Female               | Male                 |  |
| <b>Age group: Age 25-29</b>           | 0.060***<br>(0.016)  | 0.074***<br>(0.018)  |  | 0.054***<br>(0.016)  | 0.072***<br>(0.018)  |  | 0.068*<br>(0.037)    | 0.179**<br>(0.071)   |  | 0.058<br>(0.037)     | 0.178**<br>(0.070)   |  |
| Age 30-34                             | 0.065***<br>(0.023)  | 0.054**<br>(0.021)   |  | 0.052**<br>(0.024)   | 0.050**<br>(0.022)   |  | 0.115***<br>(0.040)  | 0.116**<br>(0.052)   |  | 0.102***<br>(0.039)  | 0.114**<br>(0.052)   |  |
| Age 35-39                             | 0.058<br>(0.043)     | 0.077**<br>(0.036)   |  | 0.043<br>(0.043)     | 0.070*<br>(0.037)    |  | 0.126***<br>(0.042)  | 0.145<br>(0.117)     |  | 0.115***<br>(0.041)  | 0.143<br>(0.118)     |  |
| Married or living with partner        | 0.094***<br>(0.029)  | 0.110***<br>(0.031)  |  | 0.105***<br>(0.029)  | 0.110***<br>(0.031)  |  | -0.039<br>(0.028)    | 0.051<br>(0.054)     |  | -0.030<br>(0.028)    | 0.053<br>(0.054)     |  |
| <b>Educational level:</b>             |                      |                      |  |                      |                      |  |                      |                      |  |                      |                      |  |
| Upper secondary education             | 0.063***<br>(0.017)  | 0.040**<br>(0.017)   |  | 0.065***<br>(0.017)  | 0.040**<br>(0.017)   |  | 0.171***<br>(0.031)  | 0.200**<br>(0.059)   |  | 0.165***<br>(0.030)  | 0.200**<br>(0.059)   |  |
| Higher education or equivalent        | 0.155***<br>(0.019)  | 0.109***<br>(0.023)  |  | 0.157***<br>(0.019)  | 0.108***<br>(0.023)  |  | 0.665***<br>(0.064)  | 0.647***<br>(0.100)  |  | 0.660***<br>(0.063)  | 0.645***<br>(0.100)  |  |
| Living with parents                   | -0.020<br>(0.027)    | -0.070**<br>(0.029)  |  | -0.009<br>(0.027)    | -0.068**<br>(0.029)  |  | -0.084***<br>(0.032) | -0.180***<br>(0.054) |  | -0.063*<br>(0.032)   | -0.177***<br>(0.054) |  |
| Number of children aged 5 or under    | 0.012<br>(0.018)     | -0.018<br>(0.020)    |  | 0.011<br>(0.019)     | -0.018<br>(0.020)    |  | -0.024<br>(0.024)    | -0.067*<br>(0.035)   |  | -0.026<br>(0.024)    | -0.068*<br>(0.035)   |  |
| Number of children aged 6-14          | -0.036***<br>(0.011) | -0.043***<br>(0.011) |  | -0.033***<br>(0.011) | -0.041***<br>(0.011) |  | -0.022*<br>(0.012)   | -0.005<br>(0.014)    |  | -0.021*<br>(0.011)   | -0.005<br>(0.015)    |  |
| Net Family income (10 <sup>3</sup> €) | 0.002***<br>(0.000)  | 0.002**<br>(0.001)   |  | 0.003***<br>(0.001)  | 0.002***<br>(0.001)  |  | 0.005***<br>(0.002)  | 0.008***<br>(0.002)  |  | 0.006***<br>(0.002)  | 0.008***<br>(0.003)  |  |
| Unemployment benefits dummy           | 0.032**<br>(0.013)   | 0.017<br>(0.017)     |  | 0.030**<br>(0.011)   | 0.016*<br>(0.009)    |  | 0.006<br>(0.031)     | -0.087**<br>(0.041)  |  | -0.031***<br>(0.012) | -0.004<br>(0.021)    |  |
| Regional unemployment rate            | -0.004***<br>(0.001) | -0.003<br>(0.002)    |  | -0.005***<br>(0.001) | -0.003*<br>(0.002)   |  | 0.017**<br>(0.007)   | 0.024***<br>(0.006)  |  | 0.016**<br>(0.007)   | 0.024***<br>(0.006)  |  |
| Year dummy variables                  | ✓                    | ✓                    |  | ✓                    | ✓                    |  | ✓                    | ✓                    |  | ✓                    | ✓                    |  |
| Household members at work             |                      |                      |  | -0.027***<br>(0.009) | -0.017*<br>(0.009)   |  |                      |                      |  | -0.031***<br>(0.012) | -0.006<br>(0.022)    |  |
| Constant                              | 1.297***<br>(0.051)  | 1.375***<br>(0.043)  |  | 1.318***<br>(0.051)  | 1.387***<br>(0.044)  |  | 0.785***<br>(0.061)  | 0.936***<br>(0.096)  |  | 0.807***<br>(0.062)  | 0.940***<br>(0.093)  |  |
| Observations                          | 2490                 | 2088                 |  | 2490                 | 2088                 |  | 769                  | 459                  |  | 769                  | 459                  |  |
| R <sup>2</sup>                        | 0.15                 | 0.14                 |  | 0.15                 | 0.15                 |  | 0.28                 | 0.31                 |  | 0.28                 | 0.31                 |  |

The dependent variable is the logarithm of the hourly reservation wage. OLS estimates. Baseline category: Age 16-24, less than upper secondary education, single, widow or divorced, living away from parents' home, no children. Year dummy variables and a flag variable for imputed values in the regional unemployment variable are included. Robust standard errors in parentheses; \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.

As far as differences across countries are concerned, reservation wages in Italy are shown to be higher, *ceteris paribus*, than in Spain; the Portuguese register the lowest ones. This is perfectly consistent with the pattern of expected wages in these labour markets, with Portugal being the country that registers the lowest wages and, amongst Southern European countries, Italy is the one with the highest (both gross and net) actual wages. The expected wages are proxied by the actual wages in  $t+1$  reported in table 1.2 and figure 1, where the reservation wages and actual wages are compared.

## 5.2. Determinants of the unemployment duration

To gain insights into the main factors affecting elapsed unemployment duration of young Southern-European workers, we present tables 3.1 and 3.2.

An important lesson we have learned from the first part of the econometric results (section 5.1) is that the unemployment benefits dummy variable appears to be a weak instrument for reservation wages when men are examined. That is why we additionally include net family incomes (excluding worker's own incomes) as an instrument for reservation wages when we analyze, in tables 3.1 and 3.2, the effect of reservation wages on the unemployment duration equation.

Following Hui (1991), these tables report the results obtained from OLS and 2SLS instrumental variable estimates of the determinants of unemployment duration.

**Table 3.1**  
**OLS AND IV ESTIMATES OF THE UNEMPLOYMENT DUTARION (MONTHS),**  
**ALL COUNTRIES**

|   | OLS-Specification I  |                      | OLS-Specification II |                      | IV-Specification II  |                     |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|---------------------|
|   | Female               | Male                 | Female               | Male                 | Female               | Male                |
| <b>Ln (Hourly resevation wage)</b>        |                      |                      | -0.021<br>(0.044)    | -0.105*<br>(0.055)   | -0.837<br>(0.676)    | -0.607<br>(0.772)   |
| <b>Age group:</b>                         | ✓                    | ✓                    | ✓                    | ✓                    | ✓                    | ✓                   |
| <b>Married or living with partner</b>     | -0.144*<br>(0.076)   | -0.293***<br>(0.091) | -0.136*<br>(0.081)   | -0.216**<br>(0.097)  | -0.103<br>(0.088)    | -0.190*<br>(0.111)  |
| <b>Education level:</b>                   |                      |                      |                      |                      |                      |                     |
| <b>Upper secondary education</b>          | -0.271***<br>(0.047) | -0.142***<br>(0.046) | -0.313***<br>(0.048) | -0.114**<br>(0.048)  | -0.255***<br>(0.067) | -0.079<br>(0.060)   |
| <b>Higher education or equivalent</b>     | -0.612***<br>(0.060) | -0.399***<br>(0.070) | -0.658***<br>(0.063) | -0.347***<br>(0.073) | -0.489***<br>(0.150) | -0.246<br>(0.160)   |
| <b>Living with parents</b>                | 0.341***<br>(0.076)  | 0.338***<br>(0.086)  | 0.295***<br>(0.082)  | 0.324***<br>(0.093)  | 0.302***<br>(0.087)  | 0.378***<br>(0.100) |
| <b>Number of children aged 5 or under</b> | 0.076<br>(0.055)     | 0.004<br>(0.072)     | 0.081<br>(0.063)     | -0.007<br>(0.077)    | 0.080<br>(0.063)     | 0.011<br>(0.080)    |
| <b>Number of children aged 6-14</b>       | -0.048<br>(0.036)    | -0.017<br>(0.039)    | -0.073*<br>(0.038)   | -0.030<br>(0.041)    | -0.086**<br>(0.041)  | -0.053<br>(0.053)   |
| <b>Regional unemployment rate</b>         | 0.039***<br>(0.003)  | 0.052***<br>(0.005)  | 0.035***<br>(0.004)  | 0.051***<br>(0.006)  | 0.035***<br>(0.004)  | 0.051***<br>(0.006) |

**Table 3.1 (continued)**  
**OLS AND IV ESTIMATES OF THE UNEMPLOYMENT DUTARION (MONTHS),**  
**ALL COUNTRIES**

|                             | OLS-Specification I |                     | OLS-Specification II |                     | IV-Specification II |                     |
|-----------------------------|---------------------|---------------------|----------------------|---------------------|---------------------|---------------------|
|                             | Female              | Male                | Female               | Male                | Female              | Male                |
| <b>Year dummy variables</b> | ✓                   | ✓                   | ✓                    | ✓                   | ✓                   | ✓                   |
| <b>Country:</b>             |                     |                     |                      |                     |                     |                     |
| <b>Italy</b>                | 1.009***<br>(0.053) | 1.423***<br>(0.051) | 1.002***<br>(0.058)  | 1.467***<br>(0.056) | 1.257***<br>(0.232) | 1.591***<br>(0.232) |
| <b>Greece</b>               | 0.904***<br>(0.075) | 1.044***<br>(0.089) | 0.878***<br>(0.078)  | 1.124***<br>(0.092) | 0.871***<br>(0.080) | 1.109***<br>(0.093) |
| <b>Portugal</b>             | 0.662***<br>(0.099) | 0.522***<br>(0.092) | 0.540***<br>(0.105)  | 0.442***<br>(0.099) | 0.255<br>(0.249)    | 0.309<br>(0.224)    |
| <b>Constant</b>             | 1.535***<br>(0.130) | 1.254***<br>(0.136) | 1.760***<br>(0.146)  | 1.396***<br>(0.162) | 2.737***<br>(0.842) | 2.008*<br>(1.039)   |
| <b>Observations</b>         | 7787                | 6464                | 6797                 | 5742                | 6697                | 5607                |
| <b>F<sup>a</sup></b>        |                     |                     |                      |                     | 36.87***            | 53.07***            |
| <b>R<sup>2</sup></b>        | 0.16                | 0.22                | 0.16                 | 0.22                |                     |                     |

These notes apply to tables 3.1, 3.2 and 3.3

Note <sup>a</sup>: R<sup>2</sup> has no real statistical meaning in the context of 2SLS/IV, which is why F is reported for IV regressions. The dependent variable is the logarithm of the amount of months unemployed. The last two columns report Instrumental Variable estimations using Net Family incomes and Unemployment benefits dummy as instruments.

Baseline category: Age 16-24, less than upper secondary education, single, widow or divorced, living away from parents' home, no children. Year dummy variables and a flag variable for imputed values in the regional unemployment variable are included.

Robust standard errors in parentheses; \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

To save space, we will only focus on the main results, especially those concerning the differences between instrumental and non-instrumental estimates of the unemployment duration equation.

Because both reservation wages and unemployment are in logs,  $\beta$  is the elasticity of unemployment duration with respect to reservation wages. Specifically the coefficient computed for men, in table 3.1 (OLS-specification II), means that a 1% increase in hourly reservation wages decreases the unemployment duration by 0.1%, although the statistical correlation is pretty weak (significant only at 10%) for men and not significant at all for female workers. What is more, the effect of hourly reservation wages on unemployment duration disappears when the former is instrumented. The same holds in country-specific results. Thus, reservation wages do not appear to be a key factor to explain unemployment duration, at least for young workers living in Southern Europe. Moreover, this lack of correlation does not seem to be due to the potential endogeneity of reservation wages to unemployment duration, as the instrumental estimates do not give any support to this.

In this sense, unlike some of the literature published for other countries, we cannot establish a clear correlation between unemployment benefits, reservation wages and unemployment duration.



Table 3.2 (continued)  
**OLS AND IV ESTIMATES OF THE UNEMPLOYMENT DURATION (MONTHS), BY COUNTRY**

|   | Spain                |                      |                     |                    | Portugal             |                     |                     |                      |
|---|----------------------|----------------------|---------------------|--------------------|----------------------|---------------------|---------------------|----------------------|
|   | OLS-Specification II |                      | IV-Specification II |                    | OLS-Specification II |                     | IV-Specification II |                      |
|   | Female               | Male                 | Female              | Male               | Female               | Male                | Female              | Male                 |
| <b>Ln (Hourly reservation wage)</b>       | -0.282***<br>(0.098) | -0.460***<br>(0.114) | -1.287<br>(1.024)   | 2.099<br>(2.251)   | -0.374**<br>(0.172)  | 0.110<br>(0.173)    | 0.376<br>(1.516)    | 0.737<br>(0.841)     |
| <b>Age group:</b>                         | ✓                    | ✓                    | ✓                   | ✓                  | ✓                    | ✓                   | ✓                   | ✓                    |
| <b>Married or living with partner</b>     | -0.096<br>(0.157)    | -0.243*<br>(0.139)   | 0.009<br>(0.200)    | -0.538*<br>(0.313) | -0.351**<br>(0.173)  | -0.394**<br>(0.186) | -0.340*<br>(0.193)  | -0.441**<br>(0.197)  |
| <b>Educational level:</b>                 |                      |                      |                     |                    |                      |                     |                     |                      |
| <b>Upper secondary education</b>          | -0.181**<br>(0.090)  | -0.014<br>(0.088)    | -0.113<br>(0.118)   | -0.134<br>(0.139)  | -0.105<br>(0.127)    | 0.295*<br>(0.171)   | -0.254<br>(0.305)   | 0.172<br>(0.236)     |
| <b>Higher education or equivalent</b>     | -0.516***<br>(0.095) | -0.065<br>(0.105)    | -0.361**<br>(0.183) | -0.336<br>(0.270)  | -0.046<br>(0.260)    | -0.474<br>(0.334)   | -0.713<br>(1.077)   | -0.968<br>(0.763)    |
| <b>Living with parents</b>                | 0.346**<br>(0.151)   | 0.178<br>(0.133)     | 0.338**<br>(0.155)  | 0.272<br>(0.174)   | 0.271<br>(0.177)     | 0.139<br>(0.189)    | 0.343*<br>(0.199)   | 0.209<br>(0.223)     |
| <b>Number of children aged 5 or under</b> | 0.214**<br>(0.091)   | 0.140<br>(0.100)     | 0.221**<br>(0.092)  | 0.192<br>(0.132)   | 0.085<br>(0.144)     | 0.090<br>(0.157)    | 0.124<br>(0.156)    | 0.142<br>(0.176)     |
| <b>Number of children aged 6-14</b>       | -0.063<br>(0.062)    | 0.019<br>(0.057)     | -0.106<br>(0.076)   | 0.133<br>(0.135)   | 0.141**<br>(0.065)   | 0.028<br>(0.077)    | 0.164**<br>(0.075)  | 0.036<br>(0.077)     |
| <b>Regional unemployment rate</b>         | 0.013<br>(0.008)     | 0.019**<br>(0.009)   | 0.009<br>(0.009)    | 0.027**<br>(0.012) | 0.039<br>(0.027)     | -0.102**<br>(0.025) | 0.027<br>(0.042)    | -0.119***<br>(0.036) |
| <b>Year dummy variables</b>               | ✓                    | ✓                    | ✓                   | ✓                  | ✓                    | ✓                   | ✓                   | ✓                    |
| <b>Constant</b>                           | 2.793***<br>(0.301)  | 2.676***<br>(0.271)  | 4.091***<br>(1.340) | -0.842<br>(3.101)  | 2.978***<br>(0.348)  | 2.964***<br>(0.336) | 2.338*<br>(1.255)   | 2.364***<br>(0.853)  |
| <b>Observations</b>                       | 2163                 | 1817                 | 2148                | 1804               | 718                  | 428                 | 713                 | 427                  |
| <b>F<sup>a</sup></b>                      |                      |                      | 10.28***            | 3.85***            |                      |                     | 4.58***             | 4.15***              |
| <b>R<sup>2</sup></b>                      | 0.10                 | 0.06                 |                     |                    | 0.11                 | 0.15                |                     |                      |

Regarding the rest of the variables, the variable “living with parents” shows, for men, a positive and statistically significant correlation with unemployment duration; however this regressor showed a negative sign when reservation wages were analysed (table 2.1). This is the opposite of what the literature usually reports, i.e. increasing reservation wages translate into higher unemployment duration and *vice versa*. Similarly when the variable “married or living with a partner” is evaluated, we found a positive correlation with reservation wages and negative with unemployment duration. These results may help to explain why reservation wages and unemployment duration do not keep in our results the commonly stated correlation; in particular, we do not find evidence supporting the optimal search theory, which predicts a positive correlation between both variables.

The education coefficients are to a certain extent striking. Although they are negative, implying that the time spent on finding a job is shorter for those with higher levels of schooling, the coefficients of the upper secondary and higher education variables become insignificant for men when the instrumental variable procedure is conducted. The lack of more disaggregated information on the level of education makes it difficult to give a consistent explanation for this, particularly if we account for the disparity of results among the countries under scrutiny<sup>31</sup>.

Turning to the regional unemployment rate variable, we must emphasize that the evidence about the relationship of local unemployment rates, individuals’ reservation wages and duration of a job search if unemployed is scarce and assorted. For example, Haurin and Sridhar (2003) analyse data for USA (Panel Study of Income Dynamics) to test whether relatively high local unemployment rates reduce the reservation wages of area residents or increase the duration of search. They found no evidence that local unemployment rates affect either reservation wages or the duration of search. The results achieved in our regressions are rather ambiguous as well. In general we find that higher regional unemployment rates reduce the reservation wages of Spanish unemployed but, conversely, increase the reservation wages of Italian and Portuguese workers. The results for the latter seem to be counterintuitive. In order to explain this, we have to keep in mind that unemployment rates may not be measured with enough precision, as the ECHP states the individual’s location at a substantial aggregated level. Additionally it is important to stress that the mixing of macro and micro economic variables in an estimation context is always cumbersome.

On the other hand, when analysing the effect of this regressor on the unemployment duration, the sign of the corresponding coefficient is positive<sup>32</sup>, which is the kind of result that any previous intuition would confirm.

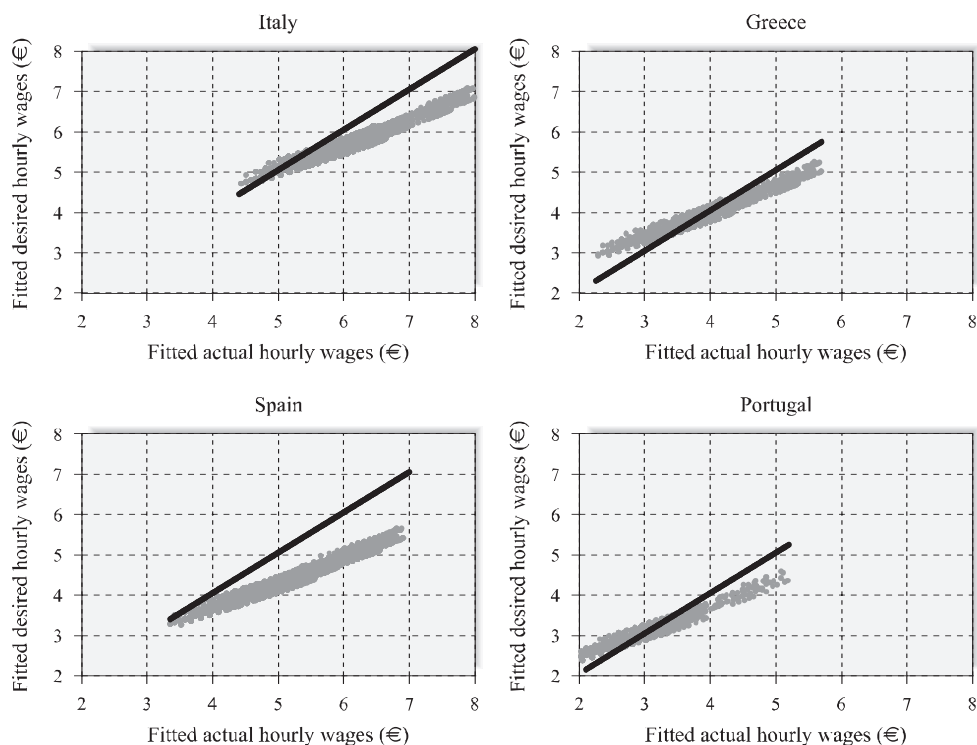
### 5.3. Reservation wages - actual wages

To conclude this section we briefly examine the correlation between reported reservation wages and actual earnings. To some extent this may be considered as a test to validate the quality of the reservation wage data.

We compute the fitted accepted hourly wages ( $t+1$ ) using a selection corrected Mincerian-type earnings specification. More specifically, we use Heckman's two steps procedure to correct for the potential selection bias. In the selection equation we include employed and non-employed workers, but the earnings equation is estimated only for workers who report earnings on full-time jobs in the year after the reservation wage was observed<sup>33</sup>.

Similarly we estimated predicted values for desired wages ( $t$ ) by using a simple Mincerian-type earnings equation.

The quantiles of the predicted values for desired wages are plotted against the quantiles of the fitted values for accepted wages (offer wages) in figure 1, distinguishing by country.



**Figure 1. Q-Q plot of fitted reservation wages and actual wages**

This plot reveals substantial differences among countries in the correlation between fitted desired and offered wages. Low(high)-paid workers in Greece and Portugal reported that the minimum net hourly wage they would accept to work is higher(lower) than the one actually achieved one year later. However Italian and Spaniards earn wages exceeding the ones they expected when they were asked about the reservation wage. Consequently, it seems that

in countries where the offered wages are lower, the worst paid workers are less ‘realistic’ in terms of the wage that they are willing to accept.

In other words, in Portugal and Greece, the sign of the gap between desired and accepted wages depends on the tail of the wage offer distribution we are analysing. This has implications in terms of labour market policies. From the labour supply standpoint, it implies that many unskilled workers would not accept the actual hourly wages offered in the labour market. However, according to the results presented in section 5.1, the solution to this problem does not seem to rely on changes in the unemployment protection system. On the other hand this may be a direct consequence of ineffective labour demand policies that have been unable to reduce the wage rigidities, forcing low-skilled workers (mainly) to work for too low wages.

## 6. Conclusion

We have undertaken an empirical approach combining OLS and instrumental variables techniques to assess the influence of a comprehensive array of personal and background characteristics on the reservation wage and the duration of unemployment.

The results drawn from the reservation wage equations would suggest that the only factors substantially affecting this variable across all four countries, and genders, are formal education and net family incomes; more interestingly the unemployment benefits dummy variable is only relevant in the case of young women. If we take reservation wages as a proxy of the individual’s restrictions on accepting a job, we could assert that unemployment benefits act as a clear disincentive, in the case of women, to accept any job and in this sense would promote some job market frictions (except in Portugal).

However the correlation between reservation wages and unemployment duration is pretty weak (significant only at 10%) for men and not significant at all for female workers. What is more, the effect of hourly reservation wages on unemployment duration disappears when the former is instrumented. The same holds when results distinguishing by country are investigated. Thus, reservation wages do not appear as a key factor to explain unemployment duration, at least for young workers living in Southern Europe. Consequently, unlike some of the literature published for other countries, we cannot establish a clear correlation between unemployment benefits, reservation wages and unemployment duration.

Summarising, we do not find evidence supporting the optimal search theory, which predicts a positive correlation between reservation wages and unemployment duration. This is not surprising, as we did not expect the optimal search hypotheses to apply in Southern labour markets, which are stagnant and highly regulated and had low rates of arrival of job offers during the observation window of our analysis.

Although differences in labour market legislations and data measurement errors could be part of the story, more research is required to better identify instruments for reservation



wages and their effect on the unemployment duration equation. At least that is what we conclude after verifying that using instrumental variable estimates to correct for the possible endogeneity of reservation wages on unemployment duration does not make a significant difference as far as the coefficients are concerned.

Regarding the differences found across genders, our results stress the persistence of a substantial degree of specialization between men and women in family life. Thus, any policy aimed at reducing unemployment duration has to take into account the general lack of co-responsibility in family tasks.

Finally, we investigated the possible correlation between the distribution of fitted desired and accepted wages. The results showed that in countries where the offered wages are lower, the worst paid workers are less 'realistic' in terms of the wage that they are willing to accept. In other words, substantial rigidities still persist in both the supply and demand sides of the labour market.

Studies like the present one here seem to be of special interest in any research agenda aimed at distinguishing the common trends in the European Union labour market, and even more so in a context of increasing legislation designed to affect the European Union as a whole.

## Notes

1. This resulted in a transfer of economic risks from employers to employees by means of various flexible employment arrangements (Regini, 1997).
2. See Atkinson and Micklewright (1991) for an exhaustive review of this literature.
3. Marimon and Zilibotti (1999) suggest that in a labour market with search frictions, unemployment benefits tend to reduce job mismatches.
4. It may also be an indicator of depreciation of human capital and the social networks or contacts in the labour market of the unemployed, as assumed by Rees and Gray (1982) and Rosenbaum *et al.* (1999).
5. Unlike this paper, many of the existing studies use administrative data; see, e.g., Lancaster (1979).
6. See Arulampalam *et al.* (2000).
7. See, e.g., Pissarides (1992).
8. See, e.g., Kiefer and Neumann (1989) and Devine and Kiefer (1991).
9. Dolton *et al.* (2005) summarises alternative measures of occupational 'success'.
10. See Van den Berg (1990) for a discussion of the implications of this assumption.
11. A specification of the hazard function is equivalent to a specification of the distribution of unemployment duration. In a different context it could be argued that hazard models are more accurate than linear models, but since we observe unemployment spells at the time of the interview (not when the transition into employment happens), the OLS estimation of a reduced-form could be more effective.
12. Alternatively some authors have proposed making use of not only unemployment benefits but also supplementary benefits as instruments for reservation wages. We have only taken into account unemployment benefits, as this variable seems to keep a much more apparent correlation with the reservation wages.

13. Peracchi (2002) presents a summary of the main characteristics of the ECHP.
14. The first wave of this panel survey (1994) is not considered in the analyses due to the lack of information on some of the relevant variables for our model.
15. For sake of space the related figures are not reported. The interested reader can obtain them from the authors upon request.
16. Recently, Nicoletti and Peracchi (2004) analysed the survey response patterns in the ECHP.
17. A potential strategy for tackling attrition is to consider the possibility that it is endogenous to the system: the long-term unemployed might be more prone to stay in the sample than those who get a job, since employed people tend to be more difficult to find by the interviewers. Nevertheless, considering that the potential endogeneity of the loss of sample would unnecessarily complicate the estimation if we assume that, in the selection of explanatory variables in the estimations (gender, age, family composition, etc.), we include the ones that explain attrition.
18. These data are rather more grouped than would be ideal, though.
19. As pointed out by Narendranathan *et al.* (1985), the estimations are rather sensitive to precisely how benefits are measured.
20. PS002: "Assuming you could find suitable work, how many hours per week would you prefer to work in this new job?"
21. Regional unemployment rates are provided by the European Statistic Database REGIO.
22. Table B1 (Appendix B) states the average actual working hours during the period 1995-2001 by country and sector.
23. We have computed "t" tests, by gender, for equality across sample means.
24. For example, in Spain, Italy and Greece, participation in continuous vocational training is the lowest. Therefore, as regards training participation among school-leavers, there is a clear North-South contrast within Europe.
25. The clusters defined in this typology are Universalist (Denmark, Norway, Sweden, Finland, Netherlands and, to a degree, UK), Residual (Australia, Canada, New Zealand, United States and, to a degree, UK), Social Insurance (Austria, Belgium, France, Germany, Italy and Japan), and Ireland and Switzerland are not classified in any cluster. Esping-Andersen has been criticised for not including a fourth world: the Mediterranean Model (Liebfried, 1992), where the countries in our study should be included. He argues that Spain, Portugal and Italy share many features of conservative/social insurance welfare states, and the main difference is the extreme familialism. Greece is not explicitly included in Esping-Andersen's 1999 tables but we infer it should be included in the Mediterranean model as well, due to the institutional similarities with the rest of the Olive Belt countries.
26. Prasad found a non-response rate of over 25% for the reservation wage question due to the particular way in which the question was posed in the German Socioeconomic Panel: respondents were given the option of answering "I do not know", which is an option not available in the ECHP.
27. The instruments that have been tested are the number of individuals interviewed in a house as a potential control for the eventual tiredness of the interviewer; the length of the interview, to control for relative attention paid by the interviewee; the method of interviewing, since face to face interviews could hinder direct and sincere answers from individuals; and whether there was somebody else present when the interview was completed, for the same reason: privacy should enhance answers to sensitive questions. None of them have a high explanatory power.
28. The age variable has been divided into four dummy variables to account for the possible non-linearity of its effect.
29. They do not restrict the sample to young adults.
30. As highlighted by Kiefer and Neumann (1989), page 1, "...a wage equation (...) is considered to have a "good fit" if it explains about 25% of the variance in wages".

31. In a static analysis of the risk of unemployment, Hienrich and Hildebrand (2005) find that education is defining a larger difference in terms of probability of unemployment amongst different types of educational levels in Spain and Italy than in Greece. In Portugal the only level that makes a real difference compared to the rest is higher education. These results can be applied to the explanation of the duration of unemployment spells as well, although they are not fully transferable or consistent with our analysis due to the simple econometric framework implemented by Hienrich and Hildebrand (2005), which uses a dichotomic dependent variable.
32. Except for Portugal, possibly as a consequence of the cited regional aggregation constraint.
33. Net monthly hourly wages are used as the dependent variable.

## References

- Aassve, A., F.C. Billari, S. Mazzucco. and F. Ongaro (2002), "Leaving home: a comparative analysis of ECHP data". *Journal of European Social Policy* 12 (4), 259-275.
- Arulampalam, W., A. Booth. and M. Taylor (2000), "Unemployment persistence". *Oxford Economic Papers*, 52 (1), 24-50.
- Atkinson, S. and J. Micklewright (1991), "Unemployment compensation and labour market transitions: a critical review". *Journal of Economic Literature* 29 (4), 1679-1727.
- Bloemen, H. and E. Stancanelli (2001), "Individual wealth, reservation wages and transitions into employment". *Journal of Labor Economics* 19 (2), 400-439.
- Boeri, T., J.I. Conde-Ruiz and V. Galasso (2004), "Cross-Skill redistribution and the trade-off between unemployment benefits and employment protection". *IZA Discussion paper* 1371, October.
- Böheim, R. (2002), "The association between reported and calculated reservation wages". *Sonderforschungsbereich 386*, Paper 273.
- Chiuri, M.C. and D. Del Boca. (2007), "Living arrangements in Europe: exploring gender differences and institutional characteristics". CHILD - Centre for Household, Income, Labour and Demographic economics – ITALY, WP 24-07.
- Devine, T. and N. Kiefer (1991), *Empirical labour economics. The search approach*, Oxford University Press, Oxford.
- Dolton, P., G. Makepeace and O. Marcenaro-Gutiérrez (2005), "Career progression: getting-on, getting-by and going nowhere". *Education Economics* 13 (2), 237-255.
- Esping-Andersen, G (1999), *Social Foundations of Postindustrial Economies*. Oxford University Press.
- Flaquer, L. (2000). "Is there a Southern European model of family policy?", in A. Pfenning, T. Bahle (eds.) *Families and Family Policies in Europe. Comparative Perspectives*, 359 S., Peter Lang, Frankfurt am Main.
- Gorter, D. and C. Gorter (1993), "The relation between unemployment benefits, the reservation wage and search theory". *Oxford Bulletin of Economics and Statistics* 55 (2), 199-214.
- Haurin, D. and K. Sridhar (2003), "The impact of local unemployment rates on reservation wages and the duration of search for a job". *Applied Economics* 35 (13), 1469-1476.

- Heinrich, G. and W. Hildebrand (2005), "Returns to Education in the European Union: a reassessment from comparative data". *European Journal of Education* 40 (1), 13-34.
- Hui, W. (1991), "Reservation wage analysis of unemployed youths in Australia". *Applied Economics* 23(8), 1341-1350.
- Jensen, P. and N. Westergård-Nielsen (1987), "A search model applied to the transition from education to work". *Review of Economic Studies* 54 (3), 461-472.
- Jones, S. (1988), "The relationship between unemployment spells and reservation wages as a test of search theory". *Quarterly Journal of Economics* 103(4), 741-765.
- Kiefer, N. M. and G. Neumann (1989), "Search models and applied labor economics". Cambridge University Press, New York.
- Lancaster, T. (1979), "Econometric Methods for the Duration of Unemployment". *Econometrica* 47(4), 939-956.
- Lancaster, T. and A. Chesher (1983), "An econometric analysis of reservation wages". *Econometrica* 51 (6), 1661-1676.
- Lancaster, T. (1985), "Simultaneous Equations Models in Applied Search Theory". *Journal of Econometrics* 28 (1), 113-126.
- Liebfried, S. (1992), Towards a European Welfare State: on integrating poverty regimes on the European Community. In Z. Ferge and J.E. Kolberg (eds.), *Social Policy in a Changing Europe*, Frankfurt. Campus Verlag, 245-280.
- Machin, S. and A. Manning (1999), "The causes and consequences of Long-Term unemployment in Europe". In O.C. Ashenfelter and D. Card (eds.), *Handbook of Labor Economics, Vol 3C*, 3085-3134.
- Marimon, R. and F. Zilibotti (1999). "Employment and Distributional Effects of Restricting Working Time". CEPR Discussion Papers 2127, C.E.P.R. Discussion Papers.
- Mortensen, D. (1986), "Job search and labor market analysis". In Ashenfelter, O., and Layard, R. (ed). *Handbook of Labor Economics*, North Holland, Amsterdam.
- Narendranathan, W., S. Nickell and J. Stern (1985), "Unemployment benefits revisited", *The Economic Journal*, 95(378), 307-329.
- Nicoletti, C. and F. Peracchi (2004), "Survey response and survey characteristics: micro-level evidence from the European Commission Household Panel". Working paper 64, CEIS.
- OECD (1999). *Employment outlook*. OECD, Paris
- Peracchi, F. (2002). "The European Community Household Panel: a review", *Empirical Economics* 27(1), 63-90.
- Pissarides, C. (1992). "Loss of skills during unemployment and the persistence of employment shocks". *Quarterly Journal of Economics* 107 (4), 1371-1391.
- Poterba, J. (1984), "The Citizens Utilities Case: A Further Dividend Puzzle", Working papers 340, Massachusetts Institute of Technology (MIT), Department of Economics.

- Prasad, E. (2003), "What determines the reservation wages of unemployed workers? New evidence from German Micro Data". IZA Discussion Paper 694.
- Rees, A. and W. Gray (1982), "Family effects in youth employment" in Freeman, R.B. and Wise, D.A. (eds.): *The Youth Labor Market Problem: Its Nature, Causes and Consequences*. Chicago University Press, pp. 453-464.
- Regini, M. (1997), "Different Responses to Common Demands: Firms, Institutions, and Training in Europe", *European Sociological Review* 13 (3), 267-282.
- Rendon, S. (2006). "Job search and asset accumulation under borrowing constraints". *International Economic Review* 47(1), 233-263.
- Rosenbaum, J. E., S. Deluca, S.R. Miller and K. Roy (1999), "Pathways into work: Short-and long-term effects of personal and institutional ties". *Sociology of Education* 73 (3), 179-196.
- Torelli, N. and U. Trivellato (1993), "Modelling inaccuracies in job-search duration data". *Journal of Econometrics* 59 (1-2), 187-211.
- Van Den Berg, G. J. (1990), "Nonstationarity in Job Search Theory". *Review of Economic Studies* 57 (2), 255-277.
- Van Den Berg, G. J. and C. Gorter (1997), "Job search and commuting time". *Journal of Business and Economics Statistics* 15 (2), 269-281.
- Wolpin, K. (1987), "Estimating a structural search model: the transition from school to work", *Econometrica* 55 (4), 801-817.
- Woodbury, S.A. and C. Davidson (2002), *Search Theory and Unemployment*. Kluwer Academic Publishers. Boston/Dordrecht/London.

## Resumen

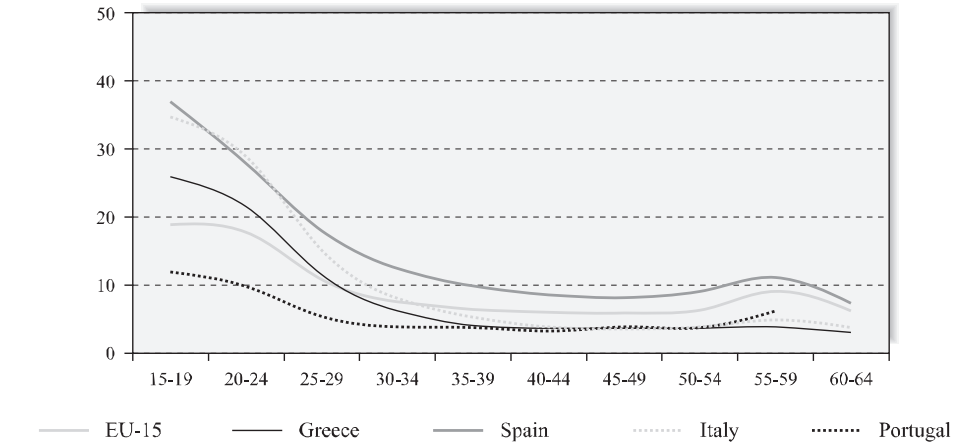
En este trabajo se aborda una doble problemática: por un lado, estudiamos el comportamiento de los jóvenes en cuanto a la búsqueda de trabajo y la medida en la cual los salarios de reserva y subsidios de desempleo juegan un papel relevante en la transición a la vida laboral. Por otro lado, pretendemos averiguar si los factores que condicionan el proceso de búsqueda de empleo también afectan tanto a los salarios como a la estabilidad laboral de las personas que finalmente consiguen un trabajo.

A tal fin se ha realizado un análisis empírico que combina la estimación de modelos estructurales a través de ecuaciones simultáneas con las técnicas de estimación con variables instrumentales. Los datos empleados proceden del Panel de Hogares de la Unión Europea (PHOGUE) para el periodo 1995-2001. En particular la submuestra utilizada corresponde a las observaciones para hombres y mujeres encuestados en los países del Sur de Europa (Italia, Grecia, España y Portugal). Algunos de los resultados obtenidos en nuestros análisis resultan esclarecedores, especialmente en lo relativo a las diferencias entre países.

*Palabras clave:* Transiciones laborales, prestaciones por desempleo, salarios de reserva, ganancias.

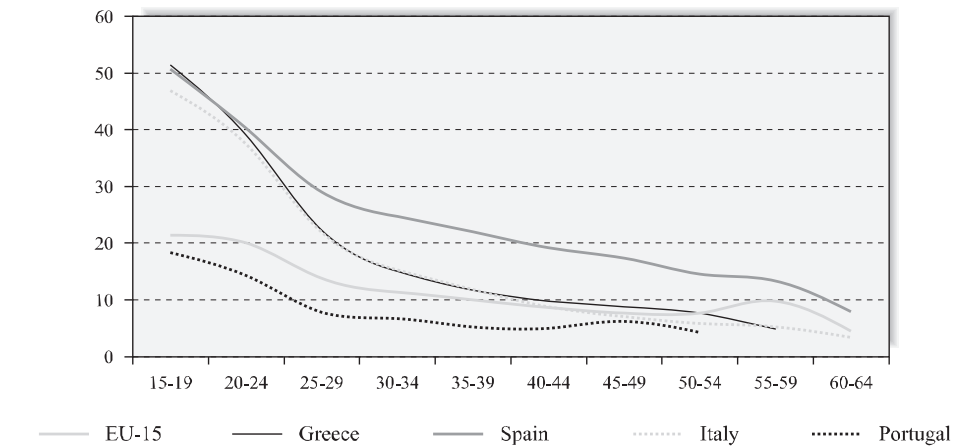
*Clasificación JEL:* J31 y J64.

**APPENDIX A**



Source: ELFS, Eurostat.

**Figure A1. Unemployment rates by age group, men (1995-2001)**



Source: ELFS, Eurostat.

**Figure A2. Unemployment rates by age group, women (1995-2001)**

**APPENDIX B**

**Table B1**  
**AVERAGE NUMBER OF WORKING HOURS DURING THE PERIOD 1995-2001**

|                 | Private Sector |        |       | Public Sector |        |       |
|-----------------|----------------|--------|-------|---------------|--------|-------|
|                 | Male           | Female | Total | Male          | Female | Total |
| <b>Italy</b>    | 43.7           | 37.9   | 41.8  | 37.2          | 32.0   | 34.8  |
| <b>Greece</b>   | 48.1           | 40.5   | 45.4  | 40.1          | 35.0   | 38.1  |
| <b>Spain</b>    | 45.6           | 40.0   | 44.1  | 40.4          | 36.8   | 38.8  |
| <b>Portugal</b> | 43.5           | 41.7   | 40.3  | 40.8          | 36.0   | 38.2  |

Source: Author's own calculations from ECHP 1995-2001.