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

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RESUMEN

En este trabajo se aborda una doble problemática: por un lado, estudiamos el comportamiento de los individuos 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 reservas, ganancias.

ABSTRACT

In our piece of work we are facing a two-fold problem: on the one hand, we study the behaviour of 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.

Keywords: Transitions into work, unemployment benefits, reservation wages, earnings.

JEL Classification: J31, J64.

1. Introduction

The second half of the nineties 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 trying to make the labour market more flexible[1], the long-term unemployment rate remained high in most of these countries (Machin & Manning, 1999). The costs of these high long-term unemployment shares are considerable both for the individual and the society, consequently understanding the mechanisms that lie behind the unemployment duration is a matter of major concern from both analytical and policy perspectives.

In the literature to date it has been hypothesized that reservation wages is an important concept for modelling certain relevant aspects of labor market dynamics, particularly unemployment duration. In this sense to investigate the factors, both microeconomics and macroeconomics, that influence the reservation wage is also of substantial interest. Among these factors, unemployment benefits (UB) have been revealed as a key issue to explain adjustments on reservation wages and so changes on unemployment duration; since benefits generosity is expected to raise reservation wages of the unemployed, it should affect the quality of subsequent job matches. Most empirical studies show negative effects of UB on unemployment duration (Devine & Kiefer (1991), Machin & Manning (1999)), i.e. benefits lead to longer unemployment spells[2], although this effect is rather small. However, to our knowledge there is not empirical evidence on how this likely correlation affect specifically to youngsters living in countries with highly similar welfare states. As far as we can provide politicians with some quantitative evidence on how powerful is the potential correlation between those variables we would be contributing to design effective policies to help those from the most disadvantaged, in terms of unemployment, age group (i.e. the youngsters) to achieve an accurate job-matching..

The extent to which UB change unemployment duration would be reflected in the individual's reservation wage[3]. Consequently the comparison of the reservation wages with the actual wages the individual receive once a job is found would be also of interest, in order

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[1] This resulted in a transfer of economic risks from employers to employees by means of various flexible employment arrangements (Regini, 2000).
[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 mismatch.

to analyse the factors affecting the long-term unemployment rate, as this will tell us about the robustness of the reservation wage as a measure of the individual labour preferences[4].

Thus, among other things, what we intend to answer in this paper is whether the reservation wage is a good indicator of the difficulties to find a job and whether the existence of unemployment benefits are actually encouraging youngsters to stay as unemployed. We pretend to shed further light on this by estimating simple econometric models for several countries belonging to the European Union (EU, henceforth). To be precise 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 among those with high index of strictness of employment protection on the basis of an assessment of national legislations (OECD, 1999) and less generosity of 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 we are not provided in our dataset with a precise figure on the amount of benefits perceived by the unemployed it results 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 withdrew a larger sample from Southern European countries what, joint to the higher proportion of unemployed workers in these countries, made the sample more representative.

In the same vein, analyzing cross-country differences in the reservation wage-unemployment duration relation may be informative about how labor markets with apparently no big differences in terms of institutions have an effect on the search-for-a-job. What is more, as there is typically little variation in the rules and regulations of UB within one country in a relatively short time period and for identification purposes it would be helpful to take profit of some cross-country variation as well[5].

The plan of this paper is as follows. In the next section we draw a picture of 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 about the potential for using unemployment benefits as an instrumental variable.

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[4] It may also be an indicator of depreciation of the human capital and the social networks or contacts in the labour market of the unemployed.

[5] Unlike this paper, many of the existing studies use administrative data. See, e.g., Lancaster (1979).

The data are described in Section 4, which complementary includes a brief portrayal of the institutional framework upsetting the four countries considered. Section 5 reports 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, unemployed are to invest time and resources on 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 along life course net of search costs. The optimal stopping rule is given by a certain wage, which is 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 along time for several reasons (state dependence, self-selection, scarring[6], obsolescence of human capital[7] among others), and therefore reservation wages should decrease along time until they reach a reasonable value that matches the available job offers given the job search elapsed duration.

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 tackling the interrelations between the relevant variables in the model: reduced models and structural approaches. Among the former the most common approach consists on the specification of hazard functions to estimate transition rates and subsequent wages. Structural models rather focus on the relations between the relevant variables of the model, and try to achieve structural estimators including sometimes information about the demand side.

Among the papers that are provided with 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 & Westergård-Nielsen (1987), Wolpin (1987), Jones (1988), Kiefer &

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[6] See Arulampalam et al (2000).
[7] See, e.g., Pissarides (1992).

Neuman (1989), Devine & 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 example of papers estimating reduced models we find, along with many others, Jensen & Westergård-Nielsen (1987) and Wolpin (1987). Jensen & 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 from 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 is not provided with 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 allow 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 through time. Our study draws on Jones (1988) to the extent that we make use of a model of elapsed duration of unemployment and exploit reported reservation wages as explanatory variable both directly and through instruments. His specification is similar to

the one in Lancaster (1985), and drives to a log linear relation between both variables of interest. Jones (1988) finds when tackling 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 the most useful when unemployment duration is analysed. However we do not agree on this as the best choice when the estimates rely on the ECHP for, at least, two reasons: firstly, we can not observe the starting point of the unemployment episodes (i.e. our measures of unemployment duration is a left censored variable), thus we can not conduct a proper duration analyses; secondly, transitions from unemployment to employment are rather sensitive to attrition and recall problems.

As mentioned in the introductory section, this piece of work would like to enlarge the empirical evidence not only on the duration of reaching a job but also the wage formation in this job across Southern European youths. In this context both the returns from human capital investment (wages) and the time spent in and (involuntary) out of employment are thought as measures of worker's 'success'[8]. 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 characterized completely by the wage they entail. As a consequence job offers below some reservation wage are rejected and 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[9].

In general, the probability of receiving an offer is assumed to be constant per unit of time. The hazard is given by[10]:

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

where r represent 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; adopting the form:

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[8] Dolton et al (2005) summarises alternative measures of occupational 'success'.
[9] See Van den Berg (1990) for a discussion about the implications of this assumption.
[10] 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 that linear models, but as far as we observe unemployment spells at the time of the interview (no when the transition into employment happen), the OLS estimation of a reduced-form could suit better.

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

where β 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[11], as far as this could be highly correlated with 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 we have repeated observations on individuals, we need to cluster errors across individuals. 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 comes largely from the European Community Household Panel (ECHP)[12] for the period 1995-2001[13]. 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 around this age 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: it is the threshold age from which transitions from unemployment into employment become less frequent, as well as the age at which mobility from employment into other situations finds its minimum. From forty years old onwards we start observing

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[11] Alternatively some authors have proposed to make use of not only unemployment benefits but also supplementary benefits as instrument 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.

[12] Peracchi (2002) presents a summary of the main characteristics of the ECHP.

[13] 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.

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[14].

We have to bear in mind when analysing this dataset that panel data usually suffer from a potential problem of attrition[15] and the ECHP is not an exception. Unfortunately there is little we can do to solve this[16].

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 individuals' recall of length of spells has considerable measurement error as short spells are often forgotten and there is considerable rounding in answers, we would expect the responses to have considerable measurement error (see, for example, Torelli and Trivellato, 1993). In this paper we do not use monthly labor market histories because of the huge amount of 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 labor market histories, and the data on unemployment duration are expressed in months[17].

In our analysis we do not control for the level of unemployment compensation as it results *impossible* to precisely know how much the worker received during each month of the unemployment spell. Instead we would introduce in our estimates a dummy indicator for individuals who, at some point during the unemployment spell, receive some unemployment benefits[18]. As above mentioned this is the main reason why we restrict our empirical approach to countries with similar (low) levels of unemployment benefits.

Regarding with the dependent variables in our estimates, we have to face two different problems: on the 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

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[14] For sake of space the regarding figures are not reported. The interested reader can obtain them from the authors upon request.

[15] Recently, Nicholetti and Peracchi (2004) have analysed the survey response patterns in the ECHP.

[16] A potential strategy for tackling attrition is to consider the possibility of it being endogenous to the system: 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 the potential endogeneity of the loss of sample would complicate unnecessarily the estimation if we assume that, in the selection of explanatory variables in the estimations (gender, age, family composition, etc), we include those that explain attrition.

[17] These data are rather more grouped than would be ideal, though.

[18] As pointed out by Narendranathan et al (1985) the estimations are rather sensitive to precisely how benefits are measured.

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 in detail the question since the precise wording is important: "Minimum net monthly income the person would accept to work the number of hours indicated in *ps002*[19]". Therefore this information was collected only for individuals who report to be searching a job.

As regards the exogenous variables, we are using two types of macroeconomic variables. Firstly, we have withdrawn the gender specific regional unemployment rates from Eurostat[20]. This has to 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 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, that may affect in a different way to different people or that have not the right level of desegregation, 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 stated 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 his lower formal qualification level, on average. Moreover they are exposed to much lower regional unemployment rates (roughly 9% below), regardless of the time at which this is accounted for. It deserves our attention the fact that the amount of hours per week the individual would prefer to work is close to the actual ones reported for those working[21], what means that, possibly, the unemployed adapt their expectations to the lack of working time flexibility remaining at the labour market.

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[19] PS002: "Assuming you could find suitable work, how many hours per week would you prefer to work in this new job?".
[20] Regional unemployment rates are provided by the European Statistic Database REGIO.
[21] Table B1 (Appendix B) states the average actual working hours during the period 1995-2001 by country and sector.

Not surprisingly, bearing in mind that we are analysing youth unemployed from Southern Europe, there is a high proportion of men and women staying at home during the unemployment period, being the differences between these figures statistically significant[22]. Unlike, the fraction of individuals receiving unemployment benefits is virtually the same.

Table 1.1: 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
Age:						
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
Education level:						
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 less	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 10^3 €	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
Regional unemployment:						
Regional unemployment rate at the interview date	19.28	9.06	23.47	9.18	14.32	5.83
Regional unemployment rate when started 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
Year dummies:						
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
Observations	14073		7617		6456	

* The value for this variable is only observed for those unemployed that find a job one year after.
  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 highlighted that, in general, there are not 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, within this group, with lower ratio of youngsters perceiving unemployment benefits. Therefore even when the four countries are

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[22] We have computed "t" tests, by gender, for equality across sample means.

subject to similar welfare protection systems there is some degree of disparity in the proportion of young unemployed perceiving unemployment benefits. This difference will be exploited in our econometric estimates.

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

Table 1.2: Descriptive Statistics by country and gender

| | Italy | | | | Greece | | | |
| | Female | | Male | | Female | | Male | |
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Ln (reservation wage) (€ PPP)	1.69	0.32	1.72	0.31	1.37	0.56	1.44	0.61
Ln (months unemployed)	3.59	1.30	3.63	1.31	3.10	1.27	2.97	1.37
Desired working hours	36.60	5.74	38.83	4.93	38.52	6.69	39.51	7.25
Age:								
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
Married or living with partner	0.19	0.39	0.10	0.30	0.27	0.44	0.12	0.32
Education level:								
Upper secondary education	0.53	0.50	0.41	0.49	0.55	0.50	0.50	0.50
Higher education or equivalent	0.09	0.29	0.06	0.24	0.22	0.42	0.15	0.36
Living with parents	0.82	0.38	0.91	0.29	0.76	0.43	0.90	0.30
Number of children aged 5 or less	0.10	0.35	0.06	0.28	0.12	0.38	0.08	0.34
Number of children aged 6-14	0.19	0.49	0.16	0.46	0.23	0.57	0.11	0.37
Net family income 10^3 €	17.34	11.77	16.25	11.87	14.51	11.32	13.64	9.58
Unemployment benefits dummy	0.03	0.17	0.03	0.16	0.10	0.31	0.12	0.32
Household members at work	1.07	0.85	0.99	0.90	1.25	0.88	1.15	0.94
Regional unemployment:								
Regional unemployment rate as at the interview date	25.98	8.88	16.06	5.37	17.34	2.04	7.77	1.51
Regional unemployment rate when started as unemployed	23.95	7.90	14.30	4.31	14.85	1.70	7.03	1.38
Unemployment rate imputation	0.01	0.08	0.01	0.09	0.02	0.15	0.02	0.13
Actual wage (t+1)	6.03	2.37	6.05	1.85	3.89	1.85	3.99	1.55
Year dummies:								
Year 1996	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
Observations	2867		2996		1491		913	

* The value for this variable is only observed for those unemployed that find a job one year after.
Source: Author's own calculations from ECHP 1995-2001 (sample restricted to unemployed people).

Table 1.2 (continued): Descriptive Statistics by country and gender

| | Spain | | | | Portugal | | | |
| | Female | | Male | | Female | | Male | |
Variable	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 group:								
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 less	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 10^3 €	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 as at the interview date	29.06	5.53	16.57	4.15	8.50	2.81	6.08	2.88
Regional unemployment rate when started as unemployed	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 that find a job one year after.

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

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

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

4.1. Institutional framework

The institutional framework in Southern European countries is defined by three main pillars: first of all, a weak connection between the education system[23] and the employment system, with a low incidence of apprenticeships and vocational training schemes that hinder quick or smooth entry into the labour market and end up (with the exception of Portugal) in long initial search processes in the labour market. The second pillar is the scarce generosity of the unemployment system, with a strong insurance component and a residual assistance component. Table B2 (Appendix B) gathers information from Tables 2.2, 2.3 and 2.4 of the OECD Benefits and Wages 2002 report. For the sake of comparison, given that unemployment benefits outcomes vary across family composition, the information in the table only applies to a 40-year-old worker without children, with 18 years of unemployment records and previously earning average income. The level of protection for unemployment is relatively exigent with the requirements of contributions to social security before the unemployment spell occurs and is far less generous in terms of quantity of benefits compared to other systems in central (i.e. France, Germany) and Northern European countries (i.e., Finland and Sweden).

The third pillar in the institutional framework is the strong traditional regulation of labour markets with protection to employment and restrictions to hire under temporary basis and part-time basis. Related to this are the recent reforms, mostly during the late eighties and nineties, enhancing flexibility at the margin of the labour market, this is, making more flexible arrangements for new comers and temporary (marginal) workers and leaving untouched the core group of workers (permanent), with dismissal costs for the latter not being in the collective bargaining agenda.

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

5. The Empirical Results

5.1. Determinants of the reservation wages

A previous issue before going in depth into the results of the first set of estimates (those focused on the reservation wage equations) 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

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[23] For example, in Spain, Italy and Greece, the participation in continuous vocational training is lowest. So, with respect to training participation among school-leavers, there is a clear north-south contrast within Europe.

non-response to this question, as in Prasad (2003)[24]. 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 are. We have tested several instruments[25] 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 approaches relates to how to take into account that, due to the wording of the questions in the survey, the stated reservation wage is conditioned on the reported number of expected working hours. There are three possible alternatives to face this problem. We can transform the reservation wage to an hourly reservation wage, or include the number of expected hours of work among the regressors, or both. Appendix C presents a brief and not exhaustive discussion about the consequences of adopting any of these alternatives, by replicating the arguments held by Bloemen and Stancanelli (2001). The results stated henceforth rely on hourly reservation wages as dependent variable, excluding expected (desired) working hours as regressor.

As a consequence 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"[26]. 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 consider as a measure of the premium associated to higher experience levels.

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[24] Prasad found a non-response rate of over 25% for the reservation wage question due to the particular way in which the question was made in the German Socioeconomic Panel: respondents were given the possibility to answer "I do not know", which is an option not available in the ECHP.

[25] 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.

[26] The age variable has been divided into four dummy variables to account for the possible non-linearity of its effect.

Marital status is only significant for unemployed men. This may respond to the fact that 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).

Obviously higher educational levels make the individual more demanding in terms of reservation wages, as one of the main reasons to invest in education is to get higher earnings. To be precise, for university graduates 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, probably as a result of the scarce proportion of individuals with higher education in this country.

Living with parents is much less relevant, to explain 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 far more related amongst (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 parents home and, possibly, a way of living their own lives.

Having kids 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 direction: if a person looks after young offsprings 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 rise in his/her reservation wage. But, at the same time, if there were children, and if there were 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 statistically significant impact upon the determination of the reservation wages, and there seems to be differences between men and women as regards this. In fact, this variable has smaller effect on women reservation wage than on men's. This reflects the contrasting nature of the relation between labour supply and the presence of children amongst these groups. In the case of men, children represent a burden that increases the direct cost of job search and diminishes the

return to expending more time looking for a job, so that reduces reservation wages and forces quicker acceptance of job offers. But for women, following our previous argument, the presence of children is not only an economic burden but also a constraint in the allocation of time for the labour market and ends up in a lower decrease of reservation wage. Summarizing, substantial degree of specialization still persist between men and women in family life.

A central result arising from our estimates of the reservation wage equation is that for the unemployment benefits dummy variable, as it is much more relevant in the case of women than men. If we take reservation wages as a proxy of the individual's restrictions to accept a job, we should assert that unemployment benefits acts as a clear disincentive, in the case of women, to accept any job and in this sense would promote job market frictions.

Moreover this correlation holds when regressions by countries are conducted (Table 2.2), except for Portugal that states 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.

Agents in households with higher levels of wealth might have better access to financial instruments to insure against labor 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 higher arrival rate of job offers which would counterbalance the former effect (Rendon, 2004) and would end simultaneously in a higher reservation wage and a shorter unemployment spell. Our results support this argument but in the case of Greece, which coefficient for this variable is insignificant although still positive.

As above mentioned we have tested several specifications for approaching household income. Apart from the *per capita* (OECD scale corrected) 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 behavior of this variable amongst women may be due to that, in a household with several employed people, men get profit of more employment opportunities, potentially due to the social networks the employed household members provide. For women the effect might be different, with these remaining in unemployment and contributing to household

production if they are the "less valuable person" (i.e. get less wage) in the labour market. These results provide additional support to the above mentioned argument on the substantial degree of specialization that still persist between men and women in household production.

Additional control variables for the reservation wage equation include year dummy variables and a flag dummy variable intended to capture that for a few regions with missing unemployment rate we imputed the national unemployment rate.

Table 2.1: Determinants of the Reservation wages, all countries

	Specification I			Specification II		
	Both	Female	Male	Both	Female	Male
Female=1	-0.094***			-0.093***		
	(0.009)			(0.009)		
Age group:						
Age 25-29	0.055***	0.052***	0.057***	0.051***	0.047***	0.056***
	(0.008)	(0.011)	(0.013)	(0.008)	(0.011)	(0.013)
Age 30-34	0.078***	0.083***	0.069***	0.072***	0.073***	0.067***
	(0.011)	(0.017)	(0.015)	(0.011)	(0.017)	(0.016)
Age 35-39	0.076***	0.082**	0.063**	0.068***	0.070**	0.060**
	(0.022)	(0.032)	(0.027)	(0.022)	(0.032)	(0.027)
Married or living with partner	0.029*	0.020	0.053**	0.033**	0.029	0.054**
	(0.016)	(0.021)	(0.023)	(0.016)	(0.022)	(0.023)
Educational level:						
Upper secondary education	0.052***	0.065***	0.034***	0.051***	0.065***	0.033***
	(0.008)	(0.011)	(0.012)	(0.008)	(0.011)	(0.012)
Higher education or equivalent	0.188***	0.200***	0.177***	0.187***	0.199***	0.176***
	(0.013)	(0.016)	(0.022)	(0.013)	(0.016)	(0.022)
Living with parents	-0.050***	-0.038*	-0.077***	-0.046***	-0.029	-0.076***
	(0.015)	(0.021)	(0.021)	(0.015)	(0.021)	(0.021)
Number of children aged 5 or less	-0.008	-0.009	-0.014	-0.009	-0.010	-0.014
	(0.010)	(0.012)	(0.015)	(0.010)	(0.012)	(0.015)
Number of children aged 6-14	-0.027***	-0.020**	-0.038***	-0.026***	-0.019**	-0.038***
	(0.006)	(0.008)	(0.008)	(0.006)	(0.008)	(0.008)
Net Family income/1000	0.002***	0.002***	0.002***	0.003***	0.002***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Unemployment benefits dummy	0.028***	0.042***	0.007	0.028***	0.043***	0.002**
	(0.012)	(0.017)	(0.015)	(0.004)	(0.017)	(0.001)
Regional unemployment rate	0.001**	0.001	0.002**	0.001**	0.000	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Year dummy variables	✓	✓	✓	✓	✓	✓
Country:						
Italy	0.316***	0.335***	0.294***	0.316***	0.335***	0.294***
	(0.008)	(0.012)	(0.011)	(0.008)	(0.012)	(0.011)
Greece	0.010	0.004	0.019	0.013	0.008	0.020
	(0.015)	(0.019)	(0.025)	(0.015)	(0.019)	(0.025)
Portugal	-0.294***	-0.324***	-0.250***	-0.288***	-0.316***	-0.247***
	(0.017)	(0.022)	(0.025)	(0.017)	(0.023)	(0.025)
Household members at work				-0.015***	-0.024***	-0.006
				(0.004)	(0.006)	(0.006)
Constant	1.295***	1.195***	1.318***	1.302***	1.210***	1.321***
	(0.020)	(0.030)	(0.030)	(0.020)	(0.030)	(0.030)
Observations	14073	7617	6456	14073	7617	6456
R^2	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

	Italy				Greece			
	Specification I		Specification II		Specification I		Specification II	
	Female	Male	Female	Male	Female	Male	Female	Male
Age group:								
Age 25-29	0.029*	0.034**	0.025	0.034**	0.053	0.066	0.049	0.068
	(0.016)	(0.015)	(0.016)	(0.016)	(0.034)	(0.051)	(0.033)	(0.051)
Age 30-34	0.018	0.059***	0.011	0.059***	0.191***	0.137**	0.178***	0.144**
	(0.019)	(0.022)	(0.019)	(0.023)	(0.064)	(0.062)	(0.063)	(0.062)
Age 35-39	0.014	0.055	0.006	0.054	0.235*	-0.005	0.217	0.003
	(0.038)	(0.044)	(0.039)	(0.045)	(0.137)	(0.086)	(0.136)	(0.086)
Married or living with partner	0.032	0.002	0.035	0.002	-0.083	0.029	-0.072	0.028
	(0.034)	(0.036)	(0.034)	(0.036)	(0.072)	(0.094)	(0.072)	(0.094)
Educational level:								
Upper secondary education	0.073***	0.030**	0.071***	0.030**	0.008	-0.010	0.010	-0.011
	(0.015)	(0.014)	(0.015)	(0.014)	(0.036)	(0.053)	(0.036)	(0.053)
Higher education or equivalent	0.295***	0.251***	0.292***	0.251***	0.132***	0.166*	0.129***	0.167**
	(0.032)	(0.041)	(0.032)	(0.041)	(0.045)	(0.085)	(0.046)	(0.085)
Living with parents	-0.017	-0.052	-0.016	-0.052	-0.048	-0.072	-0.029	-0.074
	(0.033)	(0.032)	(0.034)	(0.032)	(0.068)	(0.075)	(0.070)	(0.075)
Number of children aged <5	0.010	-0.005	0.010	-0.005	-0.001	0.024	-0.000	0.025
	(0.017)	(0.026)	(0.017)	(0.026)	(0.044)	(0.061)	(0.044)	(0.062)
Number of children aged 6-14	-0.011	-0.026*	-0.011	-0.026*	0.009	-0.062	0.009	-0.064
	(0.013)	(0.015)	(0.013)	(0.014)	(0.033)	(0.043)	(0.032)	(0.044)
Net Family income/1000	0.001*	0.002***	0.002***	0.002**	0.001	0.003	0.001	0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Unemployment benefits dummy	0.029**	-0.036	0.031**	-0.036	0.052	0.010	0.052	0.011
	(0.013)	(0.036)	(0.012)	(0.036)	(0.063)	(0.059)	(0.062)	(0.059)
Regional unemployment rate	0.002***	0.003**	0.002***	0.003**	0.000	0.019	-0.001	0.019
	(0.001)	(0.001)	(0.001)	(0.001)	(0.006)	(0.013)	(0.006)	(0.013)
Year dummy variables	✓	✓	✓	✓	✓	✓	✓	✓
Household members at work			-0.016*	-0.002			-0.033*	0.014
			(0.009)	(0.009)			(0.019)	(0.022)
Constant	1.501***	1.622***	1.512***	1.623***	1.263***	1.187***	1.298***	1.178***
	(0.040)	(0.040)	(0.041)	(0.041)	(0.118)	(0.121)	(0.117)	(0.121)
Observations	2867	2996	2867	2996	1491	913	1491	913
R^2	0.10	0.07	0.10	0.07	0.07	0.06	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

	Spain				Portugal			
	Specification I		Specification II		Specification I		Specification II	
	Female	Male	Female	Male	Female	Male	Female	Male
Age group:								
Age 25-29	0.060***	0.074***	0.054***	0.072***	0.068*	0.179**	0.058	0.178**
	(0.016)	(0.018)	(0.016)	(0.018)	(0.037)	(0.071)	(0.037)	(0.070)
Age 30-34	0.065***	0.054**	0.052**	0.050**	0.115***	0.116**	0.102***	0.114**
	(0.023)	(0.021)	(0.024)	(0.022)	(0.040)	(0.052)	(0.039)	(0.052)
Age 35-39	0.058	0.077**	0.043	0.070*	0.126***	0.145	0.115***	0.143
	(0.043)	(0.036)	(0.043)	(0.037)	(0.042)	(0.117)	(0.041)	(0.118)
Married or living with partner	0.094***	0.110***	0.105***	0.110***	-0.039	0.051	-0.030	0.053
	(0.029)	(0.031)	(0.029)	(0.031)	(0.028)	(0.054)	(0.028)	(0.054)
Educational level:								
Upper secondary education	0.063***	0.040**	0.065***	0.040**	0.171***	0.200***	0.165***	0.200***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.031)	(0.059)	(0.030)	(0.059)
Higher education or equivalent	0.155***	0.109***	0.157***	0.108***	0.665***	0.647***	0.660***	0.645***
	(0.019)	(0.023)	(0.019)	(0.023)	(0.064)	(0.100)	(0.063)	(0.100)
Living with parents	-0.020	-0.070**	-0.009	-0.068**	-0.084***	-0.180***	-0.063*	-0.177***
	(0.027)	(0.029)	(0.027)	(0.029)	(0.032)	(0.054)	(0.032)	(0.054)
Number of children aged 5 or less	0.012	-0.018	0.011	-0.018	-0.024	-0.067*	-0.026	-0.068*
	(0.018)	(0.020)	(0.019)	(0.020)	(0.024)	(0.035)	(0.024)	(0.035)
Number of children aged 6-14	-0.036***	-0.043***	-0.033***	-0.041***	-0.022*	-0.005	-0.021*	-0.005
	(0.011)	(0.011)	(0.011)	(0.011)	(0.012)	(0.014)	(0.011)	(0.015)
Net Family income/1000	0.002***	0.002**	0.003***	0.002***	0.005***	0.008***	0.006***	0.008***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)
Unemployment benefits dummy	0.032**	0.017	0.030**	0.016*	0.006	-0.087**	-0.031***	-0.004
	(0.013)	(0.017)	(0.011)	(0.009)	(0.031)	(0.041)	(0.012)	(0.021)
Regional unemployment rate	-0.004***	-0.003	-0.005***	-0.003*	0.017**	0.024***	0.016**	0.024***
	(0.001)	(0.002)	(0.001)	(0.002)	(0.007)	(0.006)	(0.007)	(0.006)
Year dummy variables	✓	✓	✓	✓	✓	✓	✓	✓
Household members at work			-0.027***	-0.017*			-0.031***	-0.006
			(0.009)	(0.009)			(0.012)	(0.022)
Constant	1.297***	1.375***	1.318***	1.387***	0.785***	0.936***	0.807***	0.940***
	(0.051)	(0.043)	(0.051)	(0.044)	(0.061)	(0.096)	(0.062)	(0.093)
Observations	2490	2088	2490	2088	769	459	769	459
R^2	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%.

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

As far as differences across countries are concerned, reservation wages in Italy are shown to be higher, everything else constant, 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 where lower wages are achieved and, amongst Southern European countries, Italy is the one with highest (both gross and net) actual wages.

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 learnt from the first part of the econometric results (section 5.1) is that unemployment benefits dummy variable appear 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 instrument for reservation wages when we analyze, in Tables 3.1 and 3.2, the effect of reservation wages in the unemployment duration equation.

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

Table 3.1: OLS and IV estimates of the Unemployment duration (months), all countries

	OLS – Specification I		OLS – Specification II		IV – Specification II	
	Female	Male	Female	Male	Female	Male
Ln (Hourly reservation wage)			-0.021	-0.105*	-0.837	-0.607
			(0.044)	(0.055)	(0.676)	(0.772)
Age groups	✓	✓	✓	✓	✓	✓
Married or living with partner	-0.144*	-0.293***	-0.136*	-0.216**	-0.103	-0.190*
	(0.076)	(0.091)	(0.081)	(0.097)	(0.088)	(0.111)
Educational level:						
Upper secondary education	-0.271***	-0.142***	-0.313***	-0.114**	-0.255***	-0.079
	(0.047)	(0.046)	(0.048)	(0.048)	(0.067)	(0.060)
Higher education or equivalent	-0.612***	-0.399***	-0.658***	-0.347***	-0.489***	-0.246
	(0.060)	(0.070)	(0.063)	(0.073)	(0.150)	(0.160)
Living with parents	0.341***	0.338***	0.295***	0.324***	0.302***	0.378***
	(0.076)	(0.086)	(0.082)	(0.093)	(0.087)	(0.100)
Number of children aged 5 or less	0.076	0.004	0.081	-0.007	0.080	0.011
	(0.055)	(0.072)	(0.063)	(0.077)	(0.063)	(0.080)
Number of children aged 6-14	-0.048	-0.017	-0.073*	-0.030	-0.086**	-0.053
	(0.036)	(0.039)	(0.038)	(0.041)	(0.041)	(0.053)
Regional unemployment rate	0.039***	0.052***	0.035***	0.051***	0.035***	0.051***
	(0.003)	(0.005)	(0.004)	(0.006)	(0.004)	(0.006)
Year dummy variables	✓	✓	✓	✓	✓	✓
Country:						
Italy	1.009***	1.423***	1.002***	1.467***	1.257***	1.591***
	(0.053)	(0.051)	(0.058)	(0.056)	(0.232)	(0.232)
Greece	0.904***	1.044***	0.878***	1.124***	0.871***	1.109***
	(0.075)	(0.089)	(0.078)	(0.092)	(0.080)	(0.093)
Portugal	0.662***	0.522***	0.540***	0.442***	0.255	0.309
	(0.099)	(0.092)	(0.105)	(0.099)	(0.249)	(0.224)
Constant	1.535***	1.254***	1.760***	1.396***	2.737***	2.008*
	(0.130)	(0.136)	(0.146)	(0.162)	(0.842)	(1.039)
Observations	7787	6464	6797	5742	6697	5607
F[a]					36.87***	53.07***
R²	0.16	0.22	0.16	0.22		

These notes apply to Tables 3.1, 3.2 and 3.3
Note [a]: R^2 has not a real statistical meaning in the context of 2SLS/IV, that is why F is reported for IV regressions. The dependent variable is the logarithm of the amount of months unemployed. 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%.

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To conserve 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, β 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 decrease 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 hold 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 South-Europe. What is more, 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 we cannot establish a clear correlation between unemployment benefits, reservation wages and unemployment duration unlike some of the literature published for other countries.

Regarding with the rest of variables, the variable "living with parents" state, 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 opposite to what the literature usually report, i.e. increasing reservation wages translates into higher unemployment duration and *vice versa*. Similarly when the variable "married or living with 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; particularly, we do not find evidence supporting the optimal search theory, which predicts a positive correlation between both variables.

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

Turning to the regional unemployment rate variable we have to emphasize that the evidence about the relationship of local unemployment rates, individuals' reservation wages and duration of search for a job if unemployed is scarce and assorted. For example, Haurin & Sridhar (2003) analyses 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 wage of Italian and Portuguese workers. The results for the latter look 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 individuals' location at a substantial aggregated level. On the other hand, when analysing the effect of this regressor on the unemployment duration the sign of the corresponding coefficient is positive[27], that is the kind of result that any previous intuition would confirm.

Table 3.2: OLS and IV estimates of the Unemployment duration (months), by country

	Italy				Greece			
	OLS – Specification II		IV – Specification II		OLS – Specification II		IV – Specification II	
	Female	Male	Female	Male	Female	Male	Female	Male
Ln (Hourly reservation wage)	0.103	0.059	-1.068	0.628	0.185***	0.016	-1.483	0.634
	(0.077)	(0.082)	(1.852)	(1.375)	(0.066)	(0.091)	(2.657)	(0.796)
Age groups	✓	✓	✓	✓	✓	✓	✓	✓
Married or living with partner	0.122	0.006	0.185	-0.004	-0.078	-0.472*	-0.891	-0.496
	(0.132)	(0.163)	(0.154)	(0.179)	(0.169)	(0.277)	(2.011)	(0.681)
Educational level:								
Upper secondary education	-0.598***	-0.266***	-0.506***	-0.275***	-0.063	0.134	-0.119	0.180
	(0.069)	(0.066)	(0.160)	(0.093)	(0.135)	(0.134)	(0.736)	(0.378)
Higher education or equivalent	-1.256***	-1.064***	-0.893	-1.215***	-0.301*	0.309*	1.693	-0.476
	(0.116)	(0.130)	(0.576)	(0.407)	(0.157)	(0.168)	(2.586)	(1.077)
Living with parents	0.334**	0.482***	0.396***	0.671***	0.290	0.436*	-0.671	0.736
	(0.135)	(0.145)	(0.145)	(0.171)	(0.182)	(0.229)	(1.925)	(0.585)
Number of children aged 5 or less	-0.082	-0.126	-0.055	-0.095	0.011	-0.280	-0.021	-0.249
	(0.114)	(0.141)	(0.115)	(0.149)	(0.154)	(0.226)	(0.909)	(0.465)
Number of children aged 6-14	-0.173**	-0.135*	-0.185**	-0.105	-0.205**	-0.015	0.187	0.311
	(0.072)	(0.072)	(0.084)	(0.084)	(0.095)	(0.134)	(0.800)	(0.468)
Regional unemployment rate	0.040***	0.081***	0.043***	0.078***	0.032	-0.001	0.021	-0.225
	(0.004)	(0.008)	(0.006)	(0.008)	(0.028)	(0.039)	(0.130)	(0.317)
Year dummy variables	✓	✓	✓	✓	✓	✓	✓	✓
Constant	2.338***	1.949***	4.040	0.859	2.044***	2.267***	26.456	-4.844
	(0.211)	(0.229)	(2.834)	(2.271)	(0.456)	(0.385)	(30.131)	(8.453)
Observations	2599	2707	2527	2599	1317	790	1310	777
F[a]			9.87***	14.26***			3.06***	3.46***
R^2	0.18	0.13			0.05	0.12		

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[27] But for Portugal, possibly as a consequence of the cited regional aggregation constraint.

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
Ln (Hourly reservation wage)	-0.282***	-0.460***	-1.287	2.099	-0.374**	0.110	0.376	0.737
	(0.098)	(0.114)	(1.024)	(2.251)	(0.172)	(0.173)	(1.516)	(0.841)
Age groups	✓	✓	✓	✓	✓	✓	✓	✓
Married or living with partner	-0.096	-0.243*	0.009	-0.538*	-0.351**	-0.394**	-0.340*	-0.441**
	(0.157)	(0.139)	(0.200)	(0.313)	(0.173)	(0.186)	(0.193)	(0.197)
Educational level:								
Upper secondary education	-0.181**	-0.014	-0.113	-0.134	-0.105	0.295*	-0.254	0.172
	(0.090)	(0.088)	(0.118)	(0.139)	(0.127)	(0.171)	(0.305)	(0.236)
Higher education or equival.	-0.516***	-0.065	-0.361**	-0.336	-0.046	-0.474	-0.713	-0.968
	(0.095)	(0.105)	(0.183)	(0.270)	(0.260)	(0.334)	(1.077)	(0.763)
Living with parents	0.346**	0.178	0.338**	0.272	0.271	0.139	0.343*	0.209
	(0.151)	(0.133)	(0.155)	(0.174)	(0.177)	(0.189)	(0.199)	(0.223)
Number of children aged 5 or less	0.214**	0.140	0.221**	0.192	0.085	0.090	0.124	0.142
	(0.091)	(0.100)	(0.092)	(0.132)	(0.144)	(0.157)	(0.156)	(0.176)
Number of children aged 6-14	-0.063	0.019	-0.106	0.133	0.141**	0.028	0.164**	0.036
	(0.062)	(0.057)	(0.076)	(0.135)	(0.065)	(0.077)	(0.075)	(0.077)
Regional unemployment rate	0.013	0.019**	0.009	0.027**	0.039	-0.102***	0.027	-0.119***
	(0.008)	(0.009)	(0.009)	(0.012)	(0.027)	(0.025)	(0.042)	(0.036)
Year dummy variables	✓	✓	✓	✓	✓	✓	✓	✓
Constant	2.793***	2.676***	4.091***	-0.842	2.978***	2.964***	2.338*	2.364***
	(0.301)	(0.271)	(1.340)	(3.101)	(0.348)	(0.336)	(1.255)	(0.853)
Observations	2163	1817	2148	1804	718	428	713	427
F[a]			10.28***	3.85***			4.58***	4.15***
R2	0.10	0.06			0.11	0.15		

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 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. To be precise 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 job in the year after the reservation wage was observed[28].

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.

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[28] Net monthly hourly wages are used as the dependent variable.

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) that the one actually achieved one year after. However Italian and Spaniards get wages superior to the ones they expected when they were asked about the reservation wage. Consequently, it looks like in countries where the offered wages are lower, the worst paid workers are less 'realistic' in terms of the wage that they are capable to accept.

In other words, in Portugal and Greece the sign of the gap between desired and accepted wages depend on the tail of the wage offer distribution we are analysing. This has implications in terms of labor market policies. From the labor supply standpoint, it implies that many low skill workers would not accept the actual hourly wages offered in the labor market. However attending 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 labor demand policies that have been unable to reduce the wage rigidities, forcing low-skilled workers (mainly) to work for too low wages.

Figure 1: Q-Q plot of fitted reservation wages and actual wages.
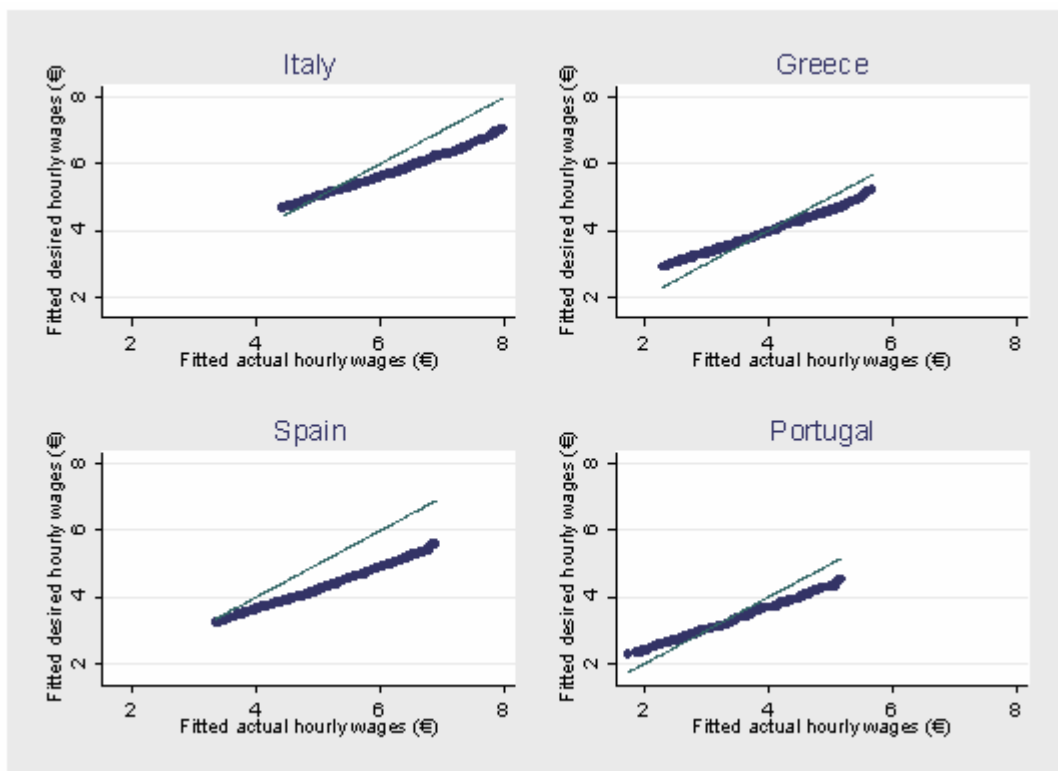
6. Conclusions

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 the whole 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 to accept a job, we should assert that unemployment benefits acts as a clear disincentive, in the case of women, to accept any job and in this sense would promote some job market frictions (but 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 hold 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 South-Europe. Consequently we cannot establish a clear correlation between unemployment benefits, reservation wages and unemployment duration unlike some of the literature published for other countries.

Summarising, we do not find evidence supporting the optimal search theory, which predicts a positive correlation between reservation wages and unemployment duration. This does not result striking, as we did not expect the optimal search hypotheses to apply in Southern labour markets, which are stagnant, highly regulated and with low rate of arrivals of job offers.

Although differences in labor market legislations and data measurement errors could be part of the story, more research is required to identify better instruments for reservation wages on the unemployment duration equation. At least that is what we conclude after checking 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 with the differences found for female and male unemployed our results stress the persistence of 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 corresponsability 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 capable to accept. In other words, substantial rigidities still persist both from the supply and demand labor market side.

Studies like the one presented here seem to be of special interest in any research agenda aimed at disentangling the common trends in the European Union labor market, more than ever in a context of increasing legislation designed to affect the European Union as a whole.

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Appendix A

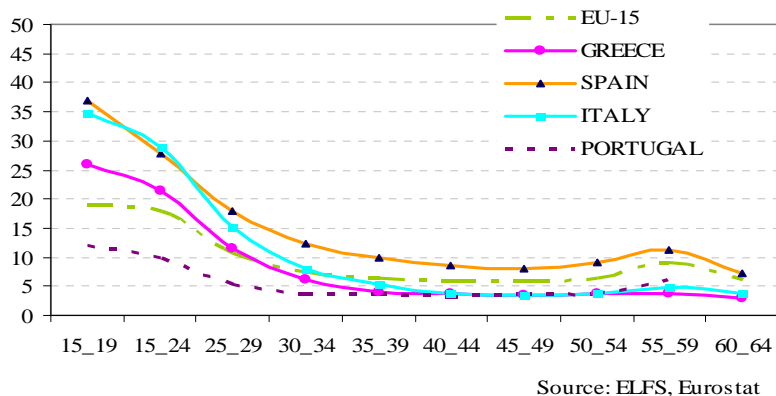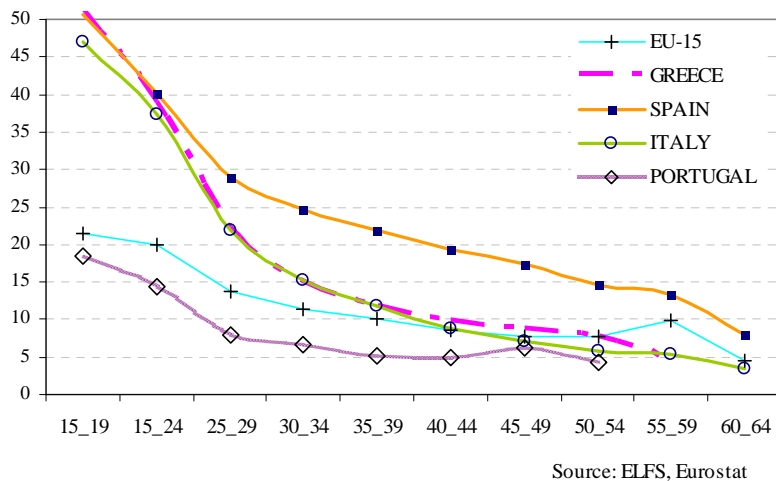**Figure A1: Unemployment rates by age group, men (1995-2001)**

Source: ELFS, Eurostat

Figure A2: Unemploymen rates by age group, women (1995-2001)

Source: ELFS, Eurostat

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Appendix B

Table B1: Average number of working hours during the period 1995-2001

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

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

Table B2: Institutional framework

	GREECE	ITALY	PORTUGAL	SPAIN
Unemployment Insurance				
Employment contributions/conditions	125 days in 14 months	52 weeks in 2 years	540 days in 2 years	12 months in 6 years
Waiting period	6 days	7 days	-	-
Payment rate (%)	40	80	65	70 (60 after 6 m)
Minimum benefit (€ PPP)			€ 5033.14	€5276.33
Maximum benefit (€ PPP)	€ 9315.45	€ 12260.02	€ 981462	€ 11959.70
Duration (months)	12	6	30	24
Unemployment Assistance				
Employment condition	Exhausting UB	-	Exhausting UB or insufficient contributions	Exhausting UB or insufficient contributions
Income (assets) test	Family income	-	Individual income	Family income
Waiting period	-	-	-	-
Duration (months)	-	-	24	18
Payment rate (%)	17% of UB	-	Flat rate	Flat rate
Minimum benefit (€ PPP)	-	-	€ 4026.51	€ 5276.33
Maximum benefit (€ PPP)	€ 1583.63	-	-	-
Benefits for dependant	-	-	-	-
First child	€ 93.83	€ 1812.67	€ 362.91	€ 261.31
Additional children	Benefits increase with each additional child, € 47	Amounts increase with each additional dependant	Same amount per additional child. Benefits vary according to additional income	Same amount by additional child. There is also a general tax allowance
Means tested	Yes	Yes	-	Yes
Additional unemployment benefit	UB raised 10% if spouse	-	UA increased if dependants	UB rate increases 25% if children

Source: OECD (2002).

Appendix C

Bloemen and Stancanelli (2001) argue a sequential link between hours of work and reservation wages, which enable them to estimate hourly reservation wages against desired hours. Although we do not reject that it is a valid thing to do, we will discuss here the consequences, in econometrics terms, of doing so. In other words, in this appendix we briefly examine the role that desired working hours plays in the process of modelling reservation wages, to the extent that the individual's answer to the former depend on the answer to the question on desired working hours[29].

As highlighted by Bloemen and Stancanelli (2001), since expected hours may also proxy individual's preferences, unobserved individual specific preferences may cause hours to be correlated with the error term. A possible solution for the potential endogeneity of hours in the reservation wage equation is an instrumental variable procedure, which would correct for the expected bias that may affect the regressors' coefficients[30]. However finding a proper instrument is quite difficult since the variables affecting desired working hours and reservation wages may be the same.

To analyse this problem the structural form of this model is specified in equations (A1) and (C2), under the lognormal assumption. Where $ln(h_{it})$ and $ln(w_{it})$ are respectively the logarithm of desired working hours and logarithm of (monthly/weekly) wages; X_{it} is a vector of individual's characteristics; ψ_{it} and η_{it} represent *unobserved* individual specific preferences. The stochastic error terms are u_{1t} and u_{2t} respectively.

$$\ln(h_{it}) = \alpha_1 + X_{it}^{'}\beta_1 + \psi_{it} + u_{1i} \qquad (C1)$$

$$\ln(w_{it}) = \alpha_2 + \gamma\ln(h_{it}) + X_{it}^{'}\beta_2 + \eta_{it} + u_{2i} \qquad (C2)$$

If we compute (C2)-(C1) and assuming that the unobservables that affect the desired working hours are the same than those affecting the reservation wage (i.e. $\eta_{it}= \psi_{it}$) and $\gamma=1$, we obtain:

$$\ln(w_{it}) - \ln(h_{it}) = (\alpha_2 - \alpha_1) + X_{it}^{'}(\beta_2 - \beta_1) + (u_{2i} - u_{1i}) \qquad (C3)$$

which is equivalent to this other one:

$$\ln(w_{it} / h_{it}) = \alpha + X_{it}^{'}\beta + \varepsilon_i \qquad (C4)$$

where $\alpha= \alpha_2 - \alpha_2,$ $\beta= \beta_2 - \beta_1$ and $\varepsilon_i= u_{2i} - u_{1i}$.

This is the expression usually estimated in the literature, which, to some extent, allows to remove partly the problem of endogeneity above mentioned. However, Bloemen

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[29] As far as PSID and ECHP are concerned.
[30] For a detailed explanation of this econometric procedure see, e.g., Greene (2003).

and Stancanelli (2001) go a step further by including (log) desired wages in the right hand side of equation (C4). Thus what they estimate is:

$$\ln(w_{it} / h_{it}) = \alpha + \theta \ln(h_{it}) + X_{it}^{'} \beta + \varepsilon_i \qquad (C5)$$

By doing a very simple algebraic transformation we achieve equation (C6), which can be simplified to attain expression (C7):

$$\ln(w_{it}) = \alpha + \ln(h_{it}) + \theta \ln(h_{it}) + X_{it}^{'} \beta + \varepsilon_i \qquad (C6)$$

$$\ln(w_{it}) = \alpha + (1 + \theta) \ln(h_{it}) + X_{it}^{'} \beta + \varepsilon_i \qquad (C7)$$

It come out from expression (C7) that the model Bloemen and Stancanelli propose (C5) is in fact equivalent to run a regression where the dependent variable is (log) of wages without correcting for desired working hours as a function of desired working hours, but for the coefficient on desired working hours. If we want to get the value of θ we have just to subtract a value of 1 from the coefficient obtained in (C7).

As long as the value we estimate for θ (from expression C5) is close to (-1), what this result is telling us is that estimating (C7) is roughly the same, in terms of size and significance level of β coefficients, as estimating an equation where the amount of desired hours is not taken into account.

In our empirical approach (Table C1)[31] the estimation results we get for model (C5) support the conclusion reached in the previous paragraph.

Table C1: OLS estimates of the Hourly Reservation Wage including desired hours as regressor

	Specification I			Specification II		
	Both	**Female**	**Male**	**Both**	**Female**	**Male**
Ln (desired working hours)	-0.912***	-0.885***	-0.970***	-0.912***	-0.884***	-0.970***
	(0.011)	(0.015)	(0.015)	(0.011)	(0.015)	(0.015)
Constant	4.684***	4.429***	4.932***	4.689***	4.435***	4.936***
	(0.044)	(0.062)	(0.059)	(0.044)	(0.062)	(0.060)
Observations	14073	7617	6456	14073	7617	6456
R2	0.62	0.64	0.59	0.62	0.64	0.59

The dependent variable is the logarithm of the hourly reservation wage.
Additional control variables: Gender, age group, marital status, educational level, living or not with parents, number or children, Net family incomes, unemployment benefits dummy, regional unemployment rate, flag variable for imputed values in the regional unemployment variable, year and country dummy variables.
Baseline category: Men, age 16-24, less than upper secondary education, single, widow or divorced, living away from parents' home, no children, Spain.
Robust standard errors in parentheses.
* significant at 10%; ** significant at 5%; *** significant at 1%.

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[31] The full set of regressors is not reported for space reasons. They can be obtained from the author's upon request.