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THE SCARRING EFFECT OF UNEMPLOYMENT IN TEN EUROPEAN COUNTRIES : AN ANALYSIS BASED ON THE ECHP

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Abstract:

This paper investigates the effect of unemployment on earnings for ten European countries. Using an harmonised database (ECHP), we estimate the impact of declared unemployment on individuals while taking account of attrition and unobserved individual heterogeneity. We find that the unemployment effect differs by country and gender. The wage penalty is greater for men than for women. It is also higher in the more flexible economies. We suggest that labour market institutions such as unemployment benefits and wage-setting institutions may be avenues of investigation to explain these differences.

Keywords : Unemployment, Unobserved heterogeneity, post unemployment earnings

JEL Codes: J31, J64

Unemployment leaves its mark on people. One of the earliest surveys in Austria in the 1930s showed that the unemployed in a village hit by a factory closure suffered from apathy and a weakening of social ties (Lazarsfeld, 1932). More recent studies have confirmed this observation and point out that unemployment affects both the well-being and the health of those who undergo it (Clark, 2008; Bell and Blanchflower, 2009; Mesrine 2000). In addition to, or associated with, these psychological and social effects, it appears that a period of unemployment also affects individuals' economic potential. It leads to a loss of income at the time and increases the likelihood of experiencing a further period of unemployment or lower wages. When an employee returns to work, they may have a lower income than someone whose career has not been interrupted.

Economic theory offers a number of ways of explaining the salary penalty due to unemployment. In terms of human capital theory (Becker, 1962 and 1975), unemployment may be seen as the breakdown of an employment relationship for which the worker had developed skills and specific human capital. In this case, on taking another job, they will no longer be able to return to their earlier productivity and their earnings may be reduced. According to Spence (1973), the employer, with imperfect information, attempts to infer a person's productivity from information such as their educational qualifications. Extending this analysis, one may suppose that a period of unemployment may also be perceived as a negative signal of the unemployed person's abilities and lead the employer to reduce the wages offered. There is apparently a stigma related to unemployment. The search and matching theory (Mortensen, 1986) provides more nuanced conclusions whereby the impact of unemployment depends on the quality of the previous job match. A period of unemployment that destroys a "successful" match may lower the future earnings of the unemployed person if they find a job in which they are less efficient. Conversely, the break may be beneficial if it enables them to find a better match and therefore be more productive. The impact of unemployment on wages is consequently an empirical question and is likely to vary from one country to another as a function of the institutions of the labour market.

Researchers in the United States were among the first to examine the consequences of unemployment on individuals. During the industrial restructuring of the 1980s, they focused on "displaced workers[1]" with some years of seniority who lost their jobs as a result of factory closure

[1] The definition of the US Bureau of Labor Statistics is as follows: "persons 20 years of age and older who lost or left jobs because their plant or company closed or moved, there was insufficient work for them to do, or their position or shift was abolished." Jacobson, Lallonde and Sullivan (1993) examined workers who had worked for at least six years with the same company before losing their jobs.

or downsizing. Studies based on a survey[2] monitoring these workers (Topel, 1990; Farber, 1993 and 1997; Neal, 1995) found a negative effect of unemployment on new hire wages by comparing wages before and after the period of unemployment. However, the extent of wage loss may be underestimated, since continuously employed workers had rising wages during that period. Moreover, the wages of people who were later laid off were already lower than those of people whose employment was not interrupted (Jacobson *et al.*, 1993). For these various reasons, and to compare these workers with those continuously employed, studies using longitudinal databases (Ruhm, 1991; Stevens, 1997) and administrative data (Jacobsen *et al.*, 1993 and 2005) added greater detail to the analysis. They note persistent negative effects of unemployment on re-hire wages. Six years after the job loss, Jacobson *et al.* (1993) find a wage penalty of 25% for unemployed workers in Pennsylvania. This loss, much higher than that found in other articles (roughly 10%-15%) may be due to the poor state of the economy at that time (Couch and Placzek, 2010). The negative effect of unemployment would thus be explained by a loss of human capital, particularly firm-specific human capital, because these studies focus on workers with some job seniority made redundant. In support of this thesis, Carrington (1993) notes that the penalty is higher when workers change industry.

The literature on Europe is much less extensive. Allowing for unobserved heterogeneity and selection bias, two articles on British male workers (Arulampalam, 2001; Gregory and Jukes, 2001) calculate an unemployment-related penalty of 6% and 10% respectively. Arulampalam adds that unemployment lowers expected wages even more. The existence of a wage penalty is confirmed for the UK economy, taking into account all unemployment periods and not simply those workers made redundant. On the other hand, an analysis of "displaced" full-time male workers in Germany (Burda and Mertens, 2001) observes a low unemployment wage penalty on re-hire (3.6%). Indeed the effect is a positive one for bottom quartile workers, those most likely to be affected by job losses due to industrial restructuring. This finding confirms those of early studies showing a small effect of unemployment on displaced workers in continental European countries (Kuhn, 2002; Leonard and Van Audenrode, 1995; Ackum, 1991). Kuhn (2002) attributed this to income support for the unemployed and wage-setting institutions in these countries. Since the European literature is less extensive and uses more diverse methods and databases, the question of an unemployment-related wage penalty remains open.

[2] The Displaced Worker Supplement" (DWS), an additional part of the Current Population Survey (CPS), was carried out for the first time in 1984. It covered workers with some seniority who had lost their jobs because of restructuring. The survey was then repeated every four years.

This article uses a common database (European Community Household Panel) to examine whether there is an unemployment-related wage handicap in Europe and whether the effect of this handicap on the wage prospects of individuals varies from one legislative and institutional environment to another. The article differs from the existing literature on a number of points. It examines the impact of unemployment stated by individuals, whatever the cause of their job loss. This may be justified since the borderline between economic inactivity and unemployment under the ILO definition may be blurred and the real motive for lay-offs may be masked or negotiated because of unemployment benefit laws. Like other articles, this one allows in its estimates for unobserved heterogeneity and selection bias. However, the Wooldridge method is used to correct for panel attrition and selection by introducing a selection equation each year[3]. Our analysis specifically introduces a gender dimension by estimating separate equations for men and women to see if the wage penalty of unemployment operates differently by gender in Europe. In the United States, men and women alike suffer a similar penalty.

The paper is organised as follows. Section 1 describes the data set and Section 2 explains the methodology. Results are discussed in Section 3 and analysed with respect to the labour market framework of each country.

I. Description of database

Data and sample.

The data used in our analysis come from the eight waves of the European Community Household Panel, surveyed annually from 1994 to 2001. Data from these waves were collected on the activity and income of individuals monitored in the ten countries selected for this analysis (Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Portugal, Spain, United Kingdom). Two of the countries in the panel in 1994 were removed[4] because variables of crucial importance for our study are not recorded.

Our variables are based on a calendar recording respondents' activity month by month. During the survey, they were asked to state their main activity for each month of the previous year, whether employment, training or unemployment. An individual is considered as "unemployed" if they report unemployment at some point in a month. This declaration option seems to us preferable

[3] The article by Arranz *et al.* (2005) on the European Community Household Panel is restricted to people present throughout the duration of the panel and introduces a selection equation for their presence in the first year.

[4] Since Austria and Finland did not participate in every wave, we do not examine them in our study. The Netherlands and Luxembourg are not included either, the former because the activity calendar variables are not recorded, and the latter because of the small sample and the small number of unemployed in this country. Sweden did not participate in the panel.

to the ILO's standard option because it does not omit the situation of the discouraged unemployed. It enables us to understand more broadly the experience of people deprived of employment[5].

Like Jacobson *et al.* (1993), we examine in this paper the consequences of unemployment on monthly wages, which include the effect of hourly wage and number of hours worked[6]. Our variable is constructed by dividing the annual income for a given year by the number of months stated to have been worked that year.

For the ten countries, we use the information available from all eight waves. And since the information on the calendar of activity and income is given for year t+1 for the individual present in year t, we have 722,946 observations from 1994 to 2000. Taking only those under 65 who are not students and have a complete calendar of activity, there remain about 543,852 observations. Of these respondents remaining, 37,000 had a period of unemployment between 1994 and 2000. Their characteristics in 1995 are given below (Table 1.1).

Table 1.1 here

Construction of explanatory variables

In order to identify the effect of unemployment by country and gender, wage estimates are made by country and gender. The first explanatory variables are the standard socio-demographic characteristics (Mincer, 1962), such as educational qualifications, cohort and cohort-square, experience and experience-square, time worked (part-time or otherwise) and sector of activity (public or private). For a closer analysis of the impact of unemployment on wages, we add detail to this variable by distinguishing between various components: "non-experience", duration effect, long-term and recurrent unemployment effect.

- *"Non-experience":* a period of unemployment is first a lack of occupational experience compared with the employed. The first effect of unemployment is the loss of experience it causes. Cumulative experience during the panel period is constructed from the activity calendar for each month in the year and supplemented by the number of years' potential experience from age at first job until first appearance in the panel. We then calculate for

[5] This approach is not totally without bias either, since people find it easier to say they were unemployed in countries with a significant support system.

[6] Concentrating on the calendar of activity to identify people who had been unemployed did not make it possible to carry out an analysis of hourly wages. We are consequently analysing the consequences of unemployment in the "broad sense".

each year the average variable for the months worked since this will determine the average wage for the year[7];

- *Duration of unemployment:* we also identify a further stigma due to unemployment by calculating the impact on potential wages of the past duration of unemployment. The loss of skills and wage prospects are likely to depend on both the fact and duration of unemployment. Here we seek to identify the influence of short-term unemployment, under one year[8]. The activity calendar is used to construct this variable, by re-initialising it when the respondent has worked for a full year[9];
- *Long-term unemployment:* the calendar can also be used to see whether the people monitored had a period of long-term unemployment during the panel period. This information, supplemented by a question about long-term unemployment before appearing in the panel, gives us an indicative variable;
- *Recurrent unemployment:* for a given total duration, recurrent unemployment is recorded to distinguish between the influence of repeated periods and a long period of unemployment. We also calculate this from the activity calendar and a variable for unemployment and the number of periods of unemployment before the panel period.

Since the ECHP is an unbalanced panel, the main problem with the data is attrition and missing values in an incomplete calendar for some 10% of respondents (table in Appendix 1). There are gaps that prevent us from accurately calculating experience and duration of last period of unemployment for all periods following the gap. We decided to estimate activity for each month in the gap from the average state observed during the 12 months before and after the gap.

II. Estimation method

There are two important related econometric issues that need to be dealt with in this type of analysis. The first is to do with unobserved heterogeneity.

[7] To allow for measurement errors, experience needs to be estimated over the entire sample—with or without mention of wages—from all the variables at each date (Dustman and Rocchina-Barrachina, 2007).
[8] Our estimates show that there was no particular influence of duration of unemployment in excess of one year.
[9] As in the case of experience, we calculate the average value for the year. We also calculate the values of these variables for the first month worked in the year. We assume that someone whose duration of unemployment in the first month is higher than the average for the year keeps the handicap recorded in January for the entire year. The duration of unemployment used is therefore average value or value at 1 January, whichever is the higher. For example, for someone unemployed from September to December in year n and employed all year n+1, this value will be 4 months, or $^2/_3$ of a half-year. For someone who had another 8-month period in from April to November of year n+1, the value will be (4x3+8x1)/4=5 months, which will be divided into the average monthly wage calculated from the 4 months worked in year n+1.

Unobserved individual heterogeneity: the future low earnings of the unemployed might also reflect their unobserved characteristics. The unemployed might, on average, have fewer social networks, have more difficult labour market conditions, be less productive types than the employed, or have a greater preference for leisure. These unobserved individual characteristics would then explain both the labour market situation and the salary earned.

Moreover, in the standard human capital model, returns to tenure and experience are interpreted as returns to specific and general human capital, respectively. But, as we have seen above, according to search models, a match between a firm and an individual will last longer if it is a "good" match, and more experienced workers would have had more time to find a good match. As a result, tenure and experience variables will be correlated with unobservable job-specific or match-specific variables and may lead to biased results that cast doubt on cross-section results (Chamberlain, 1982; Moulton, 1986). The possible correlation between the unobservables and the observables needs to be accounted for in the estimation of the parameters of interest. This will be done through two methods.

The panel data can be used to identify the correlation between the explanatory variables and the individual heterogeneity parameters by introducing individual fixed effects corresponding to the average values of the variables over the observation period (Mundlak, 1978). This is the generalisation of the "difference-in-difference" estimation that will enable us to recover the effect of an interruption by removing the common macro effects as well as the unobservable individual specific effects. We need also to allow for the effects of two further sources of bias. First, this procedure does not account for unobserved heterogeneity resulting from the quality of the match in the respondent's current job and therefore time varying for each individual. And we must take into account the non-random selection of the sample.

Attrition bias: a simple regression of individual salaries on the explanatory variables would produce biased estimated coefficients. By construction, we only observe earnings for individuals in employment who answered the questionnaire. The sample is thus selected by the labour market status and presence in the panel sample in the year in question. However, these are criteria which result from individual choice, decision to work, stay in the country, not move and stop answering the questionnaire and so on, and are correlated with the specific unobserved heterogeneity. They will likely depend on education, family structure and with respect to labour force participation, expected labour market earnings. The standard technique employed in these circumstances involves two steps (Heckman, 1979). First, a model to explain the probability of an individual being in the selected sample used in the estimation of the wages equation is estimated using a reduced form

probit. Among the set of variables entering the selection equation, one also requires variables that influence the probability of being in the sample but not the observed wages conditional on being in the sample. In our case the explanatory variables for the presence in the sample are education, and education-square, age and age-square, number of children aged 0-2, number of children aged 3-5, number of children under 15, presence of a spouse, their activity and wage, having 3 children or more, having worked in the public sector during the panel period, being a wife, a child living in their parent's home, living in an extended family. Second, a correction term is constructed using the generalised residuals (inverse Mills ratio) and used as an additional regressor in the wage equation to correct for the selection. The process is identified by exclusion variables – family and spouse situations - that explain the selection and do not explain the wages.

However, this procedure cannot be used to vary the effect of those variables that explain selection over time, although unobserved heterogeneity is also linked to the match, current job and selection, and also varies over time. Wooldridge proposes a method that consists of studying a fixed-effect model in which individual specific effects may be correlated with the explanatory variables of ***both*** equations in the model: the equation of interest explains wages and the selection equation. We use this method with the following explanatory variables for the selection equation.
In formal terms, the equations of the model are:

(1) $W_{it} = d_{it}.W_{it}^{*} = X_{it}.\beta + \mu_i + \eta_{it}, \quad i = 1,...,N, \quad t = 1,...,T$

(2) $d_{it}^{*} = Z_{it}.\theta + \alpha_i + \upsilon_{it}$

$d_{it} = 1$ if and only if $d_{it}^{*} \geq 0$

The logarithm of monthly wages in that year (W_{it}^{*}) is a latent variable only observed if the person is working ($d_{it} = 1$). In this model, β and θ are the values to be estimated and X_{it} and Z_{it} are vectors of explanatory variables where some elements, such as education, are common. For each of these equations, the global error term is broken down into a term representing individual specific effects (μ_i and α_i) and idiosyncratic terms (η_{it} and υ_{it}) which are not necessarily independent of each other.

As we have mentioned, the individual characteristics may be correlated with the explanatory variables. When seeking to estimate β, (1) has to be conditional on the result of the selection process equation.

However, since this condition may affect the unobserved determinants of wages and cause a selection bias, especially when the indicative variable d_{it} is not independent of individual fixed effects (μ_i) or chance (η_{it}). Namely,

(3) $E\{\mu_i + \eta_{it} / x_{it}, d_{it} = 1\} \neq 0$ for all *t*.

So the conditional expectation of the error term $\varepsilon_{it} = \mu_i + \eta_{it}$ is not zero. However, if expression (3) were known, it could be added to equation (1) and the parameters thus obtained estimated convergently by standard estimation methods.

Using the notation $u_{it} = \alpha_i + \nu_{it}$, Wooldridge (1995) considers the following alternative: $E\{\varepsilon_{it} / x_i, z_i, u_{it}\} = \tau_t\, u_{it} + x_i\psi$ where x_i and z_i represent vectors of x_{it} and z_{it}. As term u_{it} cannot be observed, but only the indicative variable d_{it} is observed, $E\{\varepsilon_{it} / x_i, z_i, u_{it}\}$ must be replaced by the expectation of ε_{it} where z_i and d_{it} are known. The result is :

$$E\{\varepsilon_{it} / x_i, z_i, d_{it}\} = \tau_t E\{u_{it} / x_i, z_i, d_{it}\} + x_i\psi$$

In this model, the condition expectation of u_{it} is the generalised residual of the selection equation $E\{u_{it} / x_i, z_i, d_{it}\} = \lambda_{it}$ where the λ_{it} represent the inverse Mills ratios for each *t*. Equation (1) is conditioned by the selection process and is expressed:

$$E\{y_{it} / x_i, z_i, d_{it}\} = x_i\psi + x_{it}\beta + \tau_t\lambda_{it}$$

The estimation method is the following : a probit model is estimated for each *t* to obtain λ_{it} values, then equation (1) is estimated by OLS by adding all the explanatory variables at the various dates and the error correction term for each period. The tests then account for correlation structure of the residuals.

III. Regression results

The estimations, calculated separately for men and women, are given in Tables 3.1 and 3.2, which indicate the values of the coefficients and the significance tests.

Wage equations: general effects

Education, experience, part-time work and the sector of activity present values significantly different from zero at the 1% threshold in almost all countries.

The sector of activity is used as a control variable and has a greater effect for women than for men. Compared with the private tertiary sector, the public sector and industry pay on average wages 10% to 20% higher for women. These effects are smaller in Belgium and non-significant in Denmark. For men, working outside the private tertiary sector does not have the same effect in all countries. There is a wage advantage to working in the public sector in Italy, Portugal and

Germany, whereas it is a wage penalty in Denmark, France, Ireland and the United Kingdom. In addition, the bonus related to the industrial sector, where it exists, is lower for men than for women. For both sexes, working in the farm sector considerably reduces wages, an effect that is particularly marked in Portugal.

For both men and women, education qualifications have much the same effect throughout Europe. Compared with a secondary school leaving certificate, lower qualifications reduce men's average wages by nearly 20% and a higher education qualification increases them by 30%. Since the vast majority of men work full time, this is mainly an hourly wage effect. There are two countries where qualifications have a much greater effect. In France, higher education is "worth" nearly 50% more than the next level below, and in Portugal, the wage gap between the highest and lowest qualifications is twice that of the country average (+60% for higher education, –40% for no secondary school leaving certificate). This may be connected to the relatively low wages of farm workers and other unqualified workers in that country. Conversely, the benefit of higher education is lowest in the United Kingdom (+20%). Among the less well qualified, those who have no secondary school leaving certificate, the French, Danes and British are penalised least. For women, the patterns are not as clear as for men. The wage gap for both men and women between the highest and lowest qualifications is very marked in the Mediterranean countries, France and particularly Portugal.

In general terms, experience has a significantly positive effect and is particularly rewarded in Germany, the United Kingdom and Ireland. For men, this large experience effect goes together with a large cohort effect, evidence of advantages acquired during their careers. Elsewhere, the experience and cohort effects vary by country and gender. For men, experience has a lower effect in southern European countries and France.

Past unemployment and its duration generally have a negative impact on men's wages, except in Belgium, Denmark and Germany. Perhaps the loss of skills or the stigma attached to unemployment are less marked in these countries than in the others. For women, the effect is significant in half the panel countries (Belgium, France, Germany, Ireland and Spain).

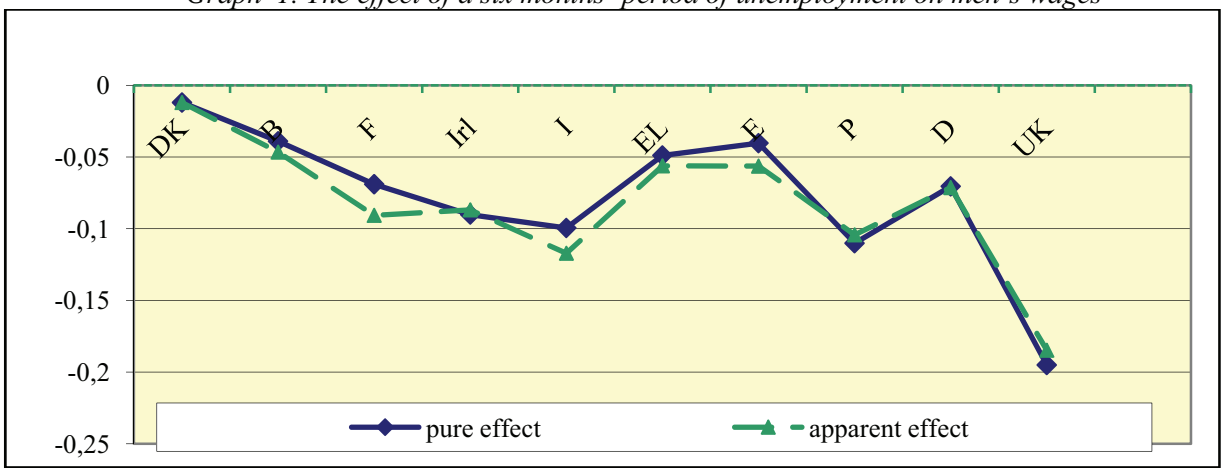
Tables 3.1 and 3.2 here

Impact of unemployment on men's wages

We examined various possible effects of unemployment on the wages of people who return to work: lack of experience, short periods of unemployment in the past and their duration, long periods of unemployment and recurrent unemployment.

The graph below summarises these points by simulating the impact on wages of a single period of six months' unemployment. Some of the variables were found to be non-relevant. For example, recurrent unemployment was not significant in many countries and its effect is not included in the graph. Similarly, the non-significant dummy variable "had a long period of unemployment" was not included[10] but was integrated in the form of an average across the panel period, since it turned out that from the outset of their careers, those who at some point had a year's unemployment have below-average wages. We simulate the effect of six months' unemployment on wages in relative value, using the estimated coefficients for the duration and experience variables, which we call the pure effect. The apparent effect includes, in addition to the two previous, the impact of unobserved heterogeneity specific to the individual, based on variable averages (Mundlak, 1978).

Graph 1. The effect of a six months' period of unemployment on men's wages



In the ten countries under study, unemployment has a negative effect on men's wages. This echoes the result found in the English-speaking countries. The wage penalty related to unemployment is confirmed in a panel of European countries even with the broader definition of unemployment we adopted. But the effect varies by country. The United Kingdom stands out clearly. The simulation of six months' unemployment reduces wages by 20%, whereas the effect is 4% in Belgium, Greece and Spain, and not far from 10% in most other European countries. These findings appear to chime with the English-language literature, which points out the relatively large effect of unemployment in the most flexible economies. At the other extreme, the effect is lowest in Denmark.

[10] Various estimations were run but it turned out that a long period of unemployment and its duration had little effect.

Unemployed men in the UK appear to combine various handicaps: having been unemployed (–14%) plus a large effect of loss of experience (–6%). This combination of handicaps is also found in Ireland, but only to half the extent in the UK (–10%).

Table 3.3 here

Among the countries with a medium wage penalty (France, Ireland, Italy, Portugal, Germany) it is in Germany that the wage penalty is mainly due to the loss of experience, in a country that places great importance on this. In the other countries it is the fact of having been unemployed that is the main source of the wage penalty. This may be due to a lower consideration of general of specific human capital or a stigma attached to the period without work. So the wage penalty varies not only in size but also in causes.

A period of more than a year's unemployment in previous years has no effect in any of the ten countries. The long-term unemployed do not see a further reduction in wages when they return to work after a long period of unemployment in addition to the impact of "short-term" unemployment under a year. However, these workers already had lower wages when they appeared in the panel, to a varying extent by country[11].

The method we adopted makes it possible to examine the effects of individual-specific heterogeneity parameters. Those who on average have already been or will be unemployed for a long period already have wages 20% lower in the United Kingdom, Ireland and Germany, and also in Belgium and Greece, where the unemployment effect is low. Elsewhere this wage reduction is close to 10%. Furthermore, these long-term unemployed were often included, during their unemployment exceeding one year, among the people not selected whose average wages for the year were unknown, whether they had dropped out, left the labour market or were long-term unemployed. Here the positive Mills ratio coefficients[12] that express selection remain smaller than this considerable negative effect[13]. Negative Mills ratio coefficients in Germany may be due to an under-representation of high wages in the panel (Wagner *et al.*, 2006) that appear as non-selected persons.

The wages the unemployed may expect when they return to work is consequently the end result of this unemployment effect and structural effects (low qualifications, tertiary sector, heterogeneity). The latter effects are particularly large in France, Italy, Spain and Greece. In these

[11] This effect is noted by the average variable "long period of unemployment in the past" for the whole panel.
[12] The Mills ratio coefficients are positive and indicate that the people selected have on average higher wages than those not selected.
[13] Except in France, where the effect is more or less the same.

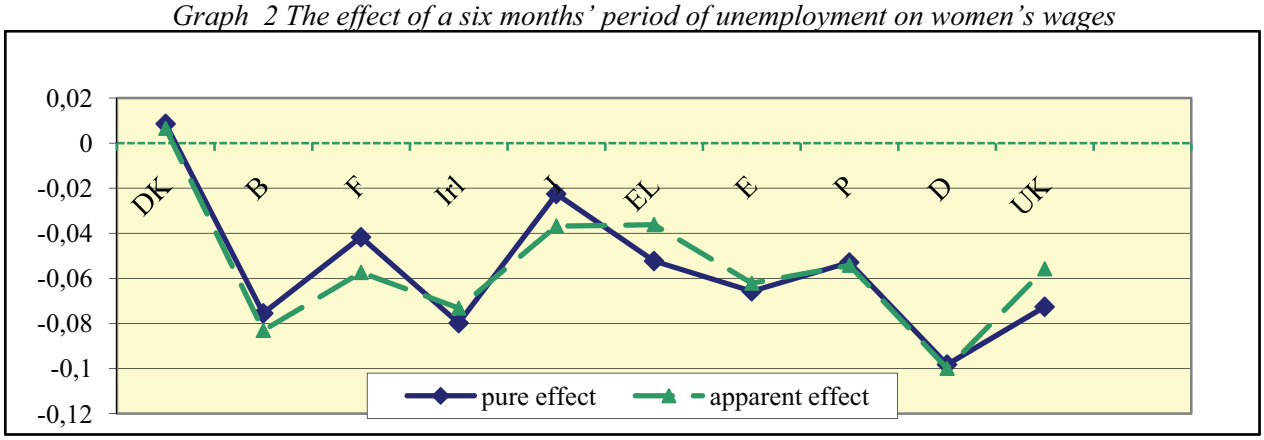
countries, for example, unemployment does not bring a high wage penalty but structural effects ensure low potential wages for the unemployed.

Women are different

Unlike the results obtained in the United States, unemployment does not have the same effect on women in Europe as on men. Women's wages are far less affected by unemployment. Couch and Placzek (2010) suggest that employers probably invest less in specific human capital for women because they expect them to have breaks in their careers. Compared with employed women, we found that the unemployed lose more in terms of loss of experience than because of any stigma attached to unemployment or a loss of specific human capital. Belgium and Germany are exceptions here, since there is a specific unemployment effect for women but not for men.

A period of six months' unemployment has little effect, varying by country. It is virtually nil in Denmark and Italy. It is low in the other southern European countries, except Spain, and in France (4%-6%).

Graph 2 The effect of a six months' period of unemployment on women's wages



Germany and Belgium are the only countries where there is an unemployment effect for women but not for men. The wage penalty in these countries is 10% and 8% respectively.

Table 3.4 here

The women hit by long-term unemployment are also the ones whose wages were already below average. This is the same as the result found for men. The reduction is more than 20% in the United Kingdom and France, and some 15% in Belgium and Italy. Elsewhere it is close to 10%. The only exception is Germany, where for women long-term unemployment does not correlate with lower wages. This may be due to the tax advantages that encourage women who have been unemployed more than a year to turn their position into a career interruption. More than 20% of long-term unemployed women are believed to be in this situation, which lets them increase their net

wages when they return to work (Jürges, 2007). The heterogeneity coefficients associated with long-term unemployment are also generally higher than those for selection by employment or attrition[14].

The role of labour market institutions

In general, the unemployment penalty is more marked in the English-speaking countries and Germany. It is very low in Denmark and low in Greece. Furthermore, unemployment generally carries a greater penalty for men than for women.

But the effect of unemployment may vary from one country to another according to wage differentials, for example, or any other feature that modifies the workings of the labour market. Kuhn (2002), in one of the few comparative analyses of workers made redundant, specifically mentions the importance of labour market institutions to explain the differential impact of unemployment on either side of the Atlantic. In particular, he says, the organisation of unemployment benefits, the level of the minimum wage and trade union representation are likely to modify the wage penalty.

Ceteris paribus, the level of unemployment benefits may influence re-hire wages. Polachek and Xiang (2006) find that more generous benefits exercise an upward pressure on such wages. But the allocation of these benefits also depends on eligibility criteria, in particular attempts to find work. Petrongolo (2009) shows, for example, that the stricter eligibility criteria in the British unemployment benefit system has increased the rate of coming off benefits but reduced the average wage level on re-hire.

In this way, the United Kingdom, where the unemployment penalty is high, combines a low level of benefits and therefore a low replacement rate (Table 3.5) with strict monitoring of attempts to find work. At the other extreme, unemployment benefits are high in Denmark and the unemployment effect is relatively low. In Belgium and Germany, the effects vary by gender. The unemployment effect is very low for men in Belgium, who generally receive unemployment benefits indefinitely. Women, more severely penalised by unemployment, generally have cohabiting status and receive lower benefits that can be suspended if unemployment persists. In Germany, a similar mechanism explains more marked effects on women. Unemployment benefits are household-income-tested after a certain time and women with a working spouse are no longer eligible for them. The Mediterranean countries (Greece, Spain, Italy) and Portugal pay benefits below the European average, although little effort is made to monitor job seeking (OECD, 2007).

[14] This is not true for Germany and Portugal.

Unemployment effects are large for men in Italy and Portugal. For other workers in these southern countries, the unemployment effect is slight.

The effect of unemployment on re-hire wages depends also more generally on the wage distribution (Table 3.5). Economies where wage differentials are wide are those where unemployment may considerably penalise wages. This distribution depends on both the level of the minimum wage and the strength of employee representative organisations (Kahn, 2010; Koeniger *et al.*, 2007). The interdecile ratio in the lower half of the wage distribution (Decile 5/Decile1) is relatively low in Belgium and Denmark, where trade union membership and coverage are high and the unemployment effect fairly low. The ratio is high in Ireland, Germany and the United Kingdom, where the unemployment effect is higher. In Portugal, sector negotiations set minimum wage levels that are not binding, and the wages paid are often higher (Blanchard and Jimeno, 1995). The wage floors are such that unemployment may reduce the wages paid.

Unemployment brings less of a stigma with it for women in Europe than in America. Except for Germany, women's wage differentials, as expressed in the Decile5/Decile 1 ratio, are also narrower than men's (Table 3.5). Although they usually receive lower wages, the level of the minimum wage, acting as a floor, prevents the lowest wages from being penalised by unemployment. However, women who have been unemployed suffer from their loss of experience, particularly in Germany and the United Kingdom.

Table 3.5 here

Women's work is less valued than men's work in some European countries, which may also explain the slight impact of unemployment on women's wages. In these cases, the stigma of unemployment may be less. The view that "when jobs are scarce, men should have more right to a job than women"[15] is shared by 45% of the population in Greece and 24% in Portugal. Conversely, only 3% share this view in Denmark. It may be that the high level of unemployment in southern Europe has reduced the stigma attached to it. In an article on the UK economy, Clark (2003) says that unemployment undermines the well-being of the unemployed person but that the effect is less where the local unemployment rate is high. It may therefore be that unemployment is being de-dramatised, both for the individual and for the possible future employer.

[15] European Social Survey, Round 4, 2008.

Conclusion

The consequences of unemployment, whether social, psychological or economic, are clear. Unemployment affects the wage potential of those who undergo it, to a varying extent by country and gender. Our first finding is that in Europe, too, unemployment can leave a lasting mark on people and have wider repercussions than the temporary loss of wages due to losing a job.

The ten European countries in the panel may be divided into three groups by the situation of men and women after six months' unemployment. In the United Kingdom, Ireland and Germany, the impact of unemployment is greatest, with a penalty of some 10%, and 20% for men in the UK. Re-hire wages are lower than they would have been without the period of unemployment because in those countries experience is valued, wage differentials for men and women are wide in the lower half of the wage distribution and, in the UK, low benefits plus strict monitoring of job-seeking force the unemployed to accept jobs more quickly, even if it means a major drop in wages. In Germany, unemployment is even more penalising for women (–10%) than for men (–7%), since benefits are household-income-tested after a year or less of unemployment, which forces women to accept a job more quickly. For the same reason, women are more penalised in Belgium (–8%), also indefinite generous benefits reduce the wage penalty for men. Men in Belgium belong, therefore, in the group of countries (Denmark and Greece) where the wage penalty is slight, less than 5% for men and women alike. In Denmark (–1%) in particular, generous unemployment benefits make it possible to wait for a job with no loss of wages other than for experience, which is at all events little valued. The other countries form the group where the wage penalty is medium, comprising Spain on the one hand and France, Italy and Portugal on the other, where the penalty is less than 5% for women and close to 10% for men.

It is also crucial to take account of heterogeneity in many European countries. Those who suffer unemployment, especially long-term unemployment, have different characteristics from other people, which further reduces their wage-earning potential. The wages they accept are a function of their observed and unobserved characteristics and the actual unemployment effect. The end result of these various elements may considerably reduce their wages and be the source of inequality and poverty. This also raises the question of incentives to find a new job since the wages to be expected on the market may be low compared to the unemployment benefits received.

The wage penalty is greater for men than for women. It is also higher in the more flexible economies. We have put forward an explanation in terms of labour market institutions, particularly those that influence wage differentials and pressure to find a job. Countries where there is strong pressure to find a job and wage differentials are wide are also those where unemployment leaves more of a mark when a job is found.

Various extensions of this research might be considered, such as closer examination of the role of institutions and restructuring in the labour market. It would also be instructive to modulate our findings by type of employment contract for workers before and after a period of unemployment.

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TABLES

Table 1.1. Characteristics of those who have experienced unemployment in 1995

Countries	Men	Women	Under 25 years old	25-54 years old	55 years old and more	Unemployment during all year
Belgium	27.2%	72.8%	14.3%	74.1%	11.6%	60.9%
Denmark	35.6%	64.4%	14.4%	73.7%	11.9%	23.7%
France	48.2%	51.8%	25.9%	66.5%	7.6%	26.1%
Germany	45.9%	54.1%	13.2%	65.7%	21.1%	26.6%
Greece	38.9%	61.1%	28.0%	67.0%	5.0%	46.5%
Ireland	72.4%	27.6%	22.8%	70.3%	6.9%	55.0%
Italy	53.9%	46.1%	37.7%	59.1%	3.2%	62.7%
Portugal	45.3%	54.7%	26.7%	61.6%	11.6%	36.7%
Spain	55.1%	44.9%	24.3%	68.5%	7.2%	44.5%
United-Kingdom	63.1%	36.9%	27.7%	60.0%	12.4%	20.8%
UE-10	50.7%	49.3%	25.4%	65.9%	8.7%	42.4%

Source : ECHP, Base : individuals having a period of unemployment in 1995.

Table 3.1 Male Wage Equations

Explanatory variables	Nordic and Continental countries				Anglo-saxon countries		Mediterranean countries			
	Belgium	Denmark	France	Germany	United-Kingdom	Ireland	Greece	Italy	Portugal	Spain
Constant	10,0382***	8,51429***	7,97236***	6,48860***	5,62007***	5,59324***	11,2424***	7,23508***	11,1291***	11,1653***
Lower education	-0,1731***	-0,14175***	-0,13726***	-0,22150***	-0,11425***	-0,17454***	-0,2557***	-0,23154***	-0,4195***	-0,1804***
Higher education	0,2977***	0,21933***	0,51805***	0,30550***	0,19734***	0,27331***	0,2846***	0,37358***	0,6171***	0,3222***
Experience	0,0225***	0,02787***	0,01015***	0,04984***	0,05590***	0,03009***	0,0062	0,01232***	0,0279***	0,0022
Experience-squarred	-0,0003***	-0,00030***	-0,00007***	-0,00032***	-0,00038***	-0,00029***	-0,0001***	-0,00008**	-0,0002***	-0,0000
Part-Time	-0,1310*	-0,23122***	-0,22324***	-0,15581***	-0,26148***	-0,24620***	-0,0344	-0,19504***	-0,1732*	-0,1389***
Public Sector	0,0241	-0,11277***	-0,05192***	0,05701***	-0,06762***	-0,06929***	0,0199	0,05926***	0,0707***	0,0012
Agriculture	-0,5712***	-0,37293***	-0,37532***	-0,43764***	-0,43517***	-0,49692***	-0,4533***	-0,45206***	-1,0278***	-0,3691***
Industry	0,0250	-0,03313***	0,03257***	0,03451***	0,03826***	0,07914***	0,0210*	0,05156***	-0,0251*	0,0936***
Duration of latest unemployment period	-0,0168	0,01561	-0,05889***	-0,02092	-0,13957***	-0,06036***	-0,0428*	-0,08723***	-0,0824***	-0,0381***
Number of Unemployment periods	-0,0154	-0,02542**	0,02927***	0,01882	-0,03062	0,01052	-0,0023	0,05515***	-0,0094	0,0060
Dummy 1995	0,0802	0,16984*	0,06688	-0,05163	0,00927	0,12708***	0,1370***	0,15236***	-0,0555	0,0519
Dummy 1996	0,1635**	0,18697**	0,08598*	0,04333	0,19852***	0,20935***	0,1905***	0,19081***	-0,0556	0,0623
Dummy 1997	0,1757***	0,29092***	0,07046	0,00243	0,15588**	0,26436***	0,3069***	0,25563***	-0,0623	0,1778***
Dummy 1998	0,3675***	0,18434*	0,08950*	-0,05822	0,09911	0,29282***	0,3846***	0,37861***	-0,0327	0,2744***
Dummy 1999	0,3320***	0,35484***	0,17556***	0,03996	0,09783	0,26640***	0,4028***	0,31397***	0,0864	0,4820***
Dummy 2000	0,3543***	0,38793***	0,19417***	-0,07207	0,11585	0,34180***	0,4775***	0,33290***	-0,0946	0,5878***
Mills Ratio 1994	-0,0249	0,03772	0,14526***	-0,02915	0,08802***	0,14532***	0,1096***	0,15283***	-0,0028	0,1407***
Mills Ratio 1995	-0,0492**	-0,02093	0,12030***	-0,01800	0,07877***	0,09388***	0,0893***	0,10499***	0,0344	0,1463***
Mills Ratio 1996	-0,0719***	-0,00913	0,11987***	-0,06911***	0,01295	0,08827***	0,1215***	0,08466***	0,0553**	0,1424***
Mills Ratio 1997	-0,0484	-0,03318*	0,13845***	-0,06058***	0,03966*	0,09473***	0,1107***	0,08620***	0,0668*	0,1355***
Mills Ratio 1998	-0,1249***	0,02022	0,13933***	-0,05253**	0,03145	0,10898***	0,1130***	0,05131***	0,0669*	0,1077***
Mills Ratio 1999	-0,0787***	-0,03790**	0,13848***	-0,09373***	0,04045	0,15136***	0,1327***	0,09341***	0,0063	0,0367**
Mills Ratio 2000	-0,0575*	-0,03434	0,14265***	-0,04016*	0,05763**	0,16256***	0,1316***	0,10315***	0,1196***	0,0077
Cohorte (age in 1993)	0,0197**	0,02293***	0,02168***	0,07641***	0,04906***	0,03112***	0,0231***	-0,01678***	0,0267***	0,0025
Cohorte (age in 1993 squarred)	-0,0000	-0,00011	-0,00004	-0,00075***	-0,00053***	-0,00025***	-0,0002***	0,00021***	-0,0003***	0,0001
Mean Experience	-0,0064	-0,01793***	-0,00595***	-0,04818***	-0,04633***	-0,01861***	0,0041	0,00242	-0,0128***	0,0072**
Mean Experience squarred	0,0001*	0,00016***	0,00002	0,00025***	0,00025***	0,00017***	0,0000	-0,00004	0,0000	-0,0000
Mean Part-Time	-0,5091***	-0,56615***	-0,75696***	-0,83242***	-0,67767***	-0,51950***	-1,0817***	-1,27274***	-0,8381***	-0,8671***
Mean number of children	0,0268***	0,03098***	0,03108***	0,06226***	0,03822***	0,06806***	0,0260***	0,02944***	-0,0089	0,0275***
Mean Duration of Unemployment	-0,0986*	-0,10426***	-0,13313***	-0,08829**	-0,10907**	-0,02063	-0,0610*	-0,10556***	0,0513	-0,1020***
Mean Number of Unemployment periods	0,0099	0,02471	-0,06711***	-0,13324***	-0,01486	-0,03550	0,0216	-0,02509	-0,0624**	0,0062
Mean Long-term Unemployment	-0,2100***	-0,08211***	0,10975***	-0,17898***	0,25298***	-0,20796***	-0,1978***	-0,14167***	-0,0895***	-0,1207***
R-squarred	0,26	0,30	0,45	0,45	0,32	0,45	0,38	0,25	0,41	0,36
Number of observations	9 246	8 678	20 250	23 494	15 270	12 047	17 495	26 419	19 255	22 074

Table 3.2. Female Wage Equations

Explanatory variables	Nordic and Continental countries				Anglo-saxon countries		Mediterranean countries			
	Belgium	Denmark	France	Germany	United-Kingdom	Ireland	Greece	Italy	Portugal	Spain
Constant	9,69185***	8,24830***	7,78659***	6,48625***	6,34442***	6,33141***	11,0852***	7,11790***	11,0258***	10,8478***
Lower education	-0,11049***	-0,11118***	-0,20587***	-0,10819***	-0,19399***	-0,19973***	-0,2804***	-0,24261***	-0,4950***	-0,2350***
Higher education	0,19376***	0,09901***	0,30909***	0,17627***	0,13685***	0,28893***	0,1775***	0,13209***	0,4593***	0,2614***
Experience	0,00650	0,00855	0,00345*	0,05039***	0,06535***	0,03802***	0,0346***	0,01784***	0,0208***	0,0232***
Experience-squarred	-0,00002	-0,00015***	-0,00002	-0,00019***	-0,00025***	-0,00024***	-0,0002***	-0,00008*	-0,0000	-0,0002***
Part-Time	-0,17202***	-0,17012***	-0,20683***	-0,25775***	-0,45851***	-0,34354***	-0,1184***	-0,14012***	-0,2422***	-0,1594***
Public Sector	0,12461***	-0,01171	0,12126***	0,16936***	0,10191***	0,09820***	0,1333***	0,18679***	0,1433***	0,1412***
Agriculture	-0,56820	-0,50808***	-0,39972***	-0,25739***	-0,54315***	-0,28319***	-1,1897***	-1,37083***	-1,1379***	-0,8357***
Industry	0,05200**	0,03390*	0,19852***	0,19829***	0,13451***	0,17568***	0,1096***	0,17159***	0,0992***	0,1614***
Duration of latest unemployment period	-0,06902**	0,01696	-0,03831**	-0,04803**	-0,00751	-0,04207**	-0,0179	-0,00477	-0,0321	-0,0427***
Number of Unemployment periods	-0,01806	-0,01691	0,02882***	0,12161***	-0,02367	0,02140	-0,0217**	0,04578***	0,0028	0,0091
Dummy 1995	-0,00565	0,08683	0,00634	-0,07177	-0,17531***	0,05234	0,1037**	0,05864	0,0857	0,1114***
Dummy 1996	0,03507	0,14045**	0,01470	-0,16870**	-0,20326***	0,02234	0,1870***	0,09405**	0,0649	0,1069**
Dummy 1997	0,02530	0,23235***	0,02670	-0,20729***	-0,23019***	0,05751	0,2854***	0,17603***	0,1507**	0,1705***
Dummy 1998	0,08979	0,21892***	0,05652	-0,17615**	-0,31250***	0,11571**	0,3454***	0,18827***	0,1788**	0,2068***
Dummy 1999	0,06650	0,31297***	0,08234**	-0,24119***	-0,32558***	0,20221***	0,3292***	0,18158***	0,0896	0,2717***
Dummy 2000	0,17510*	0,37090***	0,10164**	-0,42645***	-0,29375***	0,33575***	0,3615***	0,20835***	0,1562*	0,2667***
Mills Ratio 1994	0,01639	0,05697**	0,08936***	0,08369**	0,09033***	0,16372***	0,1503***	0,11710***	0,2091***	0,1556***
Mills Ratio 1995	0,02746	0,04284	0,07581***	0,08181***	0,11702***	0,11593***	0,1037***	0,07753***	0,1736***	0,1028***
Mills Ratio 1996	0,02585	0,04018*	0,08142***	0,13166***	0,11818***	0,12397***	0,1032***	0,06904***	0,2005***	0,1171***
Mills Ratio 1997	0,03682	0,02627	0,09681***	0,14219***	0,11742***	0,13412***	0,1087***	0,04294***	0,1684***	0,1230***
Mills Ratio 1998	0,01593	0,06133**	0,08958***	0,10447***	0,10293***	0,09788***	0,0826***	0,04684**	0,1463***	0,1084***
Mills Ratio 1999	0,07198**	0,04350	0,10973***	0,14611***	0,11474***	0,10978***	0,0893***	0,05542***	0,1795***	0,1386***
Mills Ratio 2000	0,02382	0,03271	0,11901***	0,24894***	0,13156***	0,09251***	0,0819***	0,05572**	0,1809***	0,1353***
Cohorte (age in 1993)	0,05174***	0,03368***	0,04042***	0,05394***	0,01361**	-0,02475***	0,0303***	-0,00684	-0,0084*	0,0167***
Cohorte (age in 1993 squarred)	-0,00069	-0,00040***	-0,00038***	-0,00055***	-0,00017*	0,00041***	-0,0005***	0,00007	0,0002**	-0,0002***
Mean Experience	-0,00748	-0,00539	-0,00294	-0,04356***	-0,05703***	-0,02292***	-0,0183***	-0,00677	0,0002	-0,0103*
Mean Experience squarred	0,00004	0,00013**	-0,00001	0,00010**	0,00013***	0,00008	0,0000	-0,00003	-0,0002***	0,0001
Mean Part-Time	-0,40072***	-0,38894***	-0,58655***	-0,68806***	-1,06931***	-0,39409***	-0,7903***	-0,57365***	-0,6546***	-0,6011***
Mean number of children	-0,01758*	0,02494***	-0,01295*	-0,08047***	-0,14844***	-0,00312	0,0073	-0,02251**	-0,0465***	0,0052
Mean Duration of Unemployment	-0,07976**	-0,05637*	-0,07199***	-0,02227	-0,06523	0,01020	-0,0383	-0,13394***	-0,0511	-0,0173
Mean Number of Unemployment Periods	-0,01397	0,01681	-0,06614***	-0,18582***	-0,05497*	-0,05879**	0,0856***	-0,01045	0,0408	-0,0001
Mean Long-term Unemployment	-0,16245***	-0,12040***	-0,22192***	-0,01989	-0,22953***	-0,06450**	-0,1100***	-0,14898***	-0,0807***	-0,1174***
R-squarred	0,23	0,26	0,41	0,35	0,39	0,46	0,40	0,25	0,49	0,38
Number of observations	7 624	8 012	16 975	18 811	15 693	6 998	8 361	15 201	13 488	11 666

Table 3.3 Sources of wage penalty for men

Specific effect of past unemployment	Low penalty	Medium penalty	High penalty
No	Denmark (1%) Belgium (3%)	Germany (7%)	
Yes	Spain (4%) Greece (4%)	France (7%) Ireland (9%) Italy (10%) Portugal (11%)	United-Kingdom (20%)

Table 3.4 Sources of wage penalty for women

Specific effect of past unemployment	Low penalty	Medium penalty
No	Denmark (1%) Italy (2%) Portugal (5%) Greece (5%)	United-Kingdom (7%)
Yes	France (4%)	Spain (7%) Belgium (8%) Ireland (8%) Germany (10%)

Table 3.5. Wage distribution and elements of labour market institutions

Countries	Wage dispersion	Gross Replacement Rate	Women wage dispersion
	decile5 /decile1		decile5 /decile1
Belgium	1,38	39%	1,36
Denmark	1,51	58%	1,45
France	1,57	38%	1,54
Germany	1,88	27%	1,98
Greece	1,72	15%	1,66
Ireland	1,92	29%	1,74
Italy	1,65	25%	1,62
Portugal	1,64	38%	1,51
Spain	1,69	29%	1,65
United-Kingdom	1,82	18%	1,70

Source : OECD, 2001 figures for decile ratios of gross earnings- 2004 figures for Greece and Italy- 2003 figures for Ireland. Gross replacement rates, OECD.

APPENDIX 1.

Countries	Persons with a complete calendar of activity (%)
Belgium	90,7%
Denmark	87,1%
France	82,4%
Germany	77,7%
Greece	89,0%
Ireland	96,9%
Italy	92,0%
Spain	87,7%
Portugal	91,3%
United-Kingdom	94,0%

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