LABOUR FLOWS IN THE EU AT THE BEGINNING OF THE CRISIS

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Introduction

One of the most significant aspects of the current crisis is its varying impact on the labour market variables of different EU countries. For instance, in some, during the initial phase of the crisis the unemployment rate scarcely rose and, in fact, in Germany it decreased by approximately 1 pp. Four years after the crisis began, the unemployment rate in Germany is at a record low (of 5.8%), while in other countries – especially Spain and Ireland – it has reached similar or even higher levels than those recorded in the first half of the 1990s (see Chart 1).[1] Understanding the reasons behind the different impact of the crisis on the labour market is crucial for designing policies which encourage job creation and accelerate the recovery.

An increase in the unemployment rate may reflect higher job destruction, lower job creation, an increase in the labour force (due, for example, to the inflow into the unemployment pool of new population groups which were previously inactive in the labour market) or various combinations of these three basic driving forces. The type of shock received by an economy, the employment policies implemented in response to it and labour market institutional arrangements determine variations in these three underlying variables of the unemployment rate. Consequently, a mere international comparison of aggregate unemployment rates will generally offer an incomplete picture that will not analyse in enough detail all the different factors behind the change in unemployment in a given country, nor will it analyse the contribution of employment policies and labour market institutional arrangements to said change.

Given the divergent performance of the unemployment rate in EU labour markets at the beginning of the crisis, it is reasonable to anticipate that the contribution to rising unemployment of higher job destruction, lower job creation and a fluctuating labour force has also been very mixed. In order to analyse the reasons for these differences, it is necessary to analyse labour flows and their demographic breakdown, i.e. the characteristics of the individuals comprising such flows. This type of analysis may also identify better the role played by employment policies and labour market institutional arrangements. For example, the impact of short-time working schemes, such as those implemented in Germany[2] and Austria, among other countries, should affect transitions in the labour market from employment to unemployment. Similarly, changes in unemployment due to the "discouragement effect" (the unemployed who give up looking for work) or the "additional worker effect" (an individual who becomes active in response to another member of the family unit becoming unemployed) are observed more directly when studying flows between employment/unemployment and inactivity.

This article analyses the variation in flows of workers between statuses of employment, unemployment and inactivity at the onset of the crisis, in order to identify some of the factors which may underpin the cross-country differences observed in the increase of unemployment

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1 See IMF, *Economic Outlook,* April 2010; OECD, *Employment Outlook,* 2010; and European Commission, *Employment in Europe,* 2010, for a detailed description of the different impact of the crisis on the unemployment rates of the various euro area countries.

2 Burda and Hunt (2011).

CHART 1
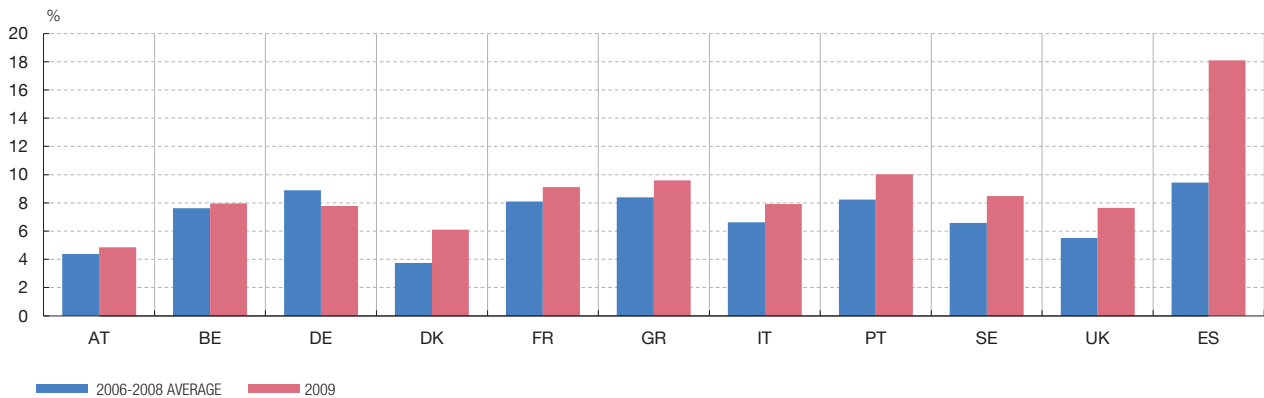
SOURCE: EU-LFS.

during that period. For this purpose, using the micro data of the European Labour Force Survey published annually by Eurostat, the size of flows of workers between the three possible labour market states (employment, unemployment and inactivity) is quantified as well as its contribution to the rise in the unemployment rate at the onset of the crisis. The advantage of using this database is that a relatively homogeneous comparison can be made both in terms of definition of the variables and data collection between various EU countries. Thus, in this analysis the results obtained for 11 EU countries are compared: Austria, Belgium, Germany, Denmark, Spain, France, Greece, Italy, Portugal, Sweden and the United Kingdom. Furthermore, the micro breakdown of the survey not only makes it possible to quantify changes in the flows, as has been done in other studies,[3] but also to identify the demographic characteristics of their constituent individuals. By contrast, Eurostat makes these data available with a slight lag which limits the time span for performing this analysis.[4]

A further caveat worth pointing out is that the results are influenced by the annual frequency of the data used, since with this sample frequency it is not possible to observe labour transitions which occur in a period of less than 12 months. These transitions may be important for certain population groups and, especially, in countries where the labour market institutional arrangements favour high labour turnover. Thus, the analysis presented below generally provides a lower level for the probabilities of moving between the three relevant labour market states: employment, unemployment and activity/inactivity.

Labour flows and changes in the unemployment rate

If the probabilities of moving between labour inactivity, employment and unemployment remained constant over time, the unemployment rate would ultimately also converge on a constant value formally known as the *steady-state unemployment rate*.[5] Based on this

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3 Shimer (2007), Elsby et al. (2011), and Petrongolo and Pissarides (2008).

4 The latest available data refer to 2009.

5 As detailed in Pissarides (1986), the steady-state unemployment rate can be defined on the basis of the six probabilities of moving between the three statuses of activity – employment, unemployment and inactivity –:

$$\bar{u} = \frac{h_{eu} + \dfrac{h_{iu}}{h_{ie} + h_{iu}} * h_{ei}}{h_{eu} + \dfrac{h_{iu}}{h_{ie} + h_{iu}} * h_{ei} + h_{ue} + \dfrac{h_{ie}}{h_{iu} + h_{ie}} * h_{ui}}$$

where each h_{kj} refers to the probability of transition between two states of activity, e represents the status of employment, u that of unemployment and i that of inactivity.
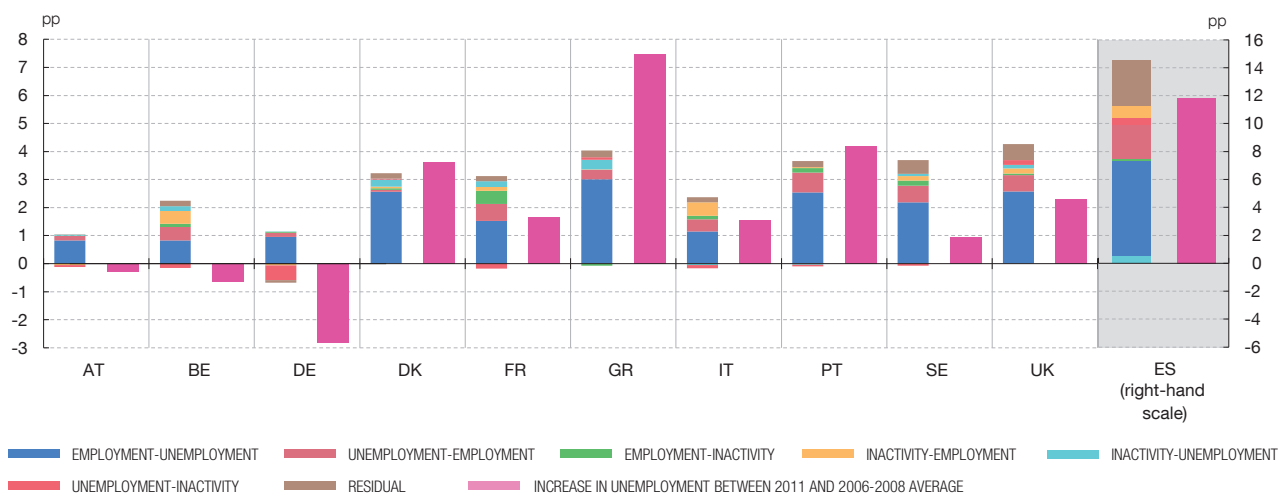
SOURCES: EU-LFS and Banco de España.

NOTE: The information referring to Spain is shown in the grey shaded area and on the right-hand scale.

relationship between labour flows and the unemployment rate, it is possible to proxy the respective contributions of variations in job creation, in job destruction and in the labour force to changes in the unemployment rate. Thus, for example, the contribution of job destruction to the variation in the unemployment rate can be calculated as the change in the (steady-state) unemployment rate which would have arisen if only the probability of transition between employment and unemployment had changed, while all the other transition probabilities remained constant.

It must be taken into account, however, that this breakdown of the variations in the unemployment rate in terms of the contributions of its three basic underlying factors is only an approximation. Aside from the sum of the contributions of each of the six possible transitions envisaged, there is a residual factor which, in most of the countries, is relatively small.[6] Additionally, it should be considered that this article compares a period of expansion (2006-2008) with one of recession (2009). It is still too early to determine the duration of the recessionary period and its final effect on transition probabilities. However the estimated transition probabilities provide a *steady-state unemployment rate* which is closer to that seen in 2011 than that recorded in 2009 (see Chart 2).

Chart 2 shows the results of the breakdown, explained above, of the variations in the unemployment rate, by comparing the period immediately before the crisis (2006-2008) with 2009, the year in which the deterioration of the labour market began. According to these calculations, in most of the countries analysed it is the increase in the probability of moving from employment to unemployment (i.e. job loss and becoming unemployed) which has a higher weight in said change, followed by the decrease in the probability of the unemployed finding a job. In fact, in countries such as Denmark, Greece, Portugal and the United Kingdom more than 2 pp of the change in the unemployment rate can be attributed to the increase in the probability of job loss. Also, the decline in the probability of moving from unemployment to employment represented around 0.5 pp of the contribution to unemployment in France, Portugal, Sweden and the United Kingdom, while in Austria, Ger-

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6   This residual factor arises because the relationship between the steady-state unemployment rate and the transition probabilities is not linear.

many and Denmark the probability of finding a job hardly decreased and, consequently, its contribution to the change in unemployment was virtually zero. In Spain, where the increase in the unemployment rate was substantially higher, the changes in these two flows explain 9.3 pp in total (6.8 pp for the transition between employment and unemployment, and 2.5 pp for the transition in the opposite direction).

With regard to the flows between inactivity and activity, it should be highlighted that the increase in the outflow from unemployment to inactivity made the unemployment rate in Germany decrease (by around 0.5 pp), while in the United Kingdom and in Spain the increase in the probability of moving from employment to inactivity (mainly related to retirements) would add 0.2 pp and 0.5 pp, respectively, to the unemployment rate. Due to the brief period of time analysed, a significant increase in the unemployment-inactivity flow related to the discouragement effect is not observed, except in the case of Germany, where its performance practically offsets the weak deterioration in the probability of job loss. And, finally, the change in the probability of moving from inactivity to unemployment has had practically no relevance in countries like Germany, Portugal, Sweden and the United Kingdom. However, in Spain, Greece, Denmark and France a slight – yet positive – contribution is observed to the increase in unemployment (of 0.5 pp for Spain and around 0.2 pp in the other cases), which may arise both from fewer employment opportunities for recent graduates and the higher trend during crises towards participation of traditionally inactive groups, which is related to the additional worker effect.

Job creation and destruction: a demographic breakdown

As described in the previous section, the increase in the probability of becoming unemployed, together with the decrease in the probability of finding a job, explain almost all of the increase in the unemployment rate in 2009 in most of the countries analysed. However, not all population groups (on the basis of age, gender and educational attainment level) were affected by the adjustment to the same degree. According to the estimates made, the changes in job destruction and creation during this crisis were not the same for all the groups in the same country nor for all the countries in respect of a specific group. A brief description follows of the most important characteristics of the demographic breakdown of the labour flows in the 11 EU countries considered (see summary in Table 1), which are obtained from the estimates of the probabilities of moving from one labour state to another in which individuals' age, gender and educational attainment level are used as explanatory variables (see Table 2).[7]

TRANSITIONS FROM EMPLOYMENT TO UNEMPLOYMENT

Panel A of Chart 3 shows the effect the crisis has had on the probability of job loss for the various demographic groups considered.[8] Two features which characterise the early stages of this recession are immediately discernible in the countries selected. On one hand, the increase in the probability of job loss and becoming unemployed seems to have affected males more strongly and this is particularly pronounced in Germany, Belgium and Austria. On the other, in countries such as Austria, Germany, France and Portugal the educational attainment level could have acted as insurance against job

7 For each flow a logit model was estimated in which the dependent variable takes a value of 1, if the individual moves from one state to another between t-1 and t, and takes a value of 0, if the individual remains in the same status reported in t-1. 18 reference dummies were included as independent variables. These dummies are the result of matching gender (male and female), educational attainment level (low, medium and high) and age (16-35, 36-55 and 56-65), in addition to the interaction of each dummy with the dichotomic variable referring to the fact that the observation is from the 2009 sample. These interacted variables are of interest since they quantify the effect that the crisis has had on the probability of transition from one labour state to another for each demographic group considered.

8 For the sake of brevity, the results are presented only for those countries in which each of the flows analysed was considered most representative. The detail of all the estimates will be published shortly in a working paper.

PERFORMANCE OF FLOWS BY COUNTRY IN 2009 COMPARED WITH 2006-2008

TABLE 1

AUSTRIA
(the steady-state unemployment rate would increase by 1 pp)

Increase in the transition between employment and unemployment, essentially centred on males with a medium and low educational attainment level.	Decrease in the probability of finding a job, especially for young people and middle-aged males with medium and low educational attainment levels.

BELGIUM
(the steady-state unemployment rate would increase by 2 pp)

All flows contributed to this increase. Job loss affected essentially all males of any age and educational attainment level.	The decrease in the probability of finding a job particularly influenced males and young people. The inflow into employment from inactivity also increased to a greater degree for males.

GERMANY
(the steady-state unemployment rate would increase by 0.5 pp)

Job loss increased among males without university studies.	The increase of the flow from employment to unemployment was offset by the increase of the flow from unemployment to inactivity which essentially affected middle-aged men and women.

DENMARK
(the steady-state unemployment rate would increase by 3.2 pp)

All population groups experienced job loss, but males to a greater degree. The transition from inactivity to employment decreased among young people.	The transition from inactivity to unemployment increased among young people and middle-aged workers.

FRANCE
(the steady-state unemployment rate would increase by 3 pp)

Similar to the case of Belgium. All flows contributed to some extent. The probability of job loss increased more for workers without university studies.	The probability of moving from employment to inactivity increased for young people. The probability of moving from inactivity to unemployment increased only in the case of women over 45 years old with a medium educational attainment level.

GREECE
(the steady-state unemployment rate would increase by 4 pp)

More than 75% of said increase is due to the increase in the probability of job loss which affected to a lesser degree women over 45 years old and men over 45 years old with university studies.	The probability of moving from inactivity to unemployment increased among middle-aged males.

ITALY
(the steady-state unemployment rate would increase by 2.2 pp)

Approximately half of this increase is due to the rise in the transition from employment to unemployment which affected all population groups.	The contribution of the transition between inactivity and employment was also high, especially for individuals without university studies.

PORTUGAL
(the steady-state unemployment rate would increase by 3.6 pp)

The probability of job loss increased to a lesser degree among population groups with higher educational attainment levels.	The decrease in the probability of finding a job is especially pronounced among population groups with a low educational attainment level.

SWEDEN
(the steady-state unemployment rate would increase by 3.6 pp)

The decrease in the probability of finding a job affected to a lesser degree population groups with a higher educational attainment level. The probability of moving from employment to inactivity increased among young people and those over 45 years old with a medium educational attainment level.	High decrease in the probability of moving from inactivity to employment, especially for young people.

UNITED KINGDOM
(the steady-state unemployment rate would increase by 4.3 pp)

Increase in the probability of job loss for all population groups. The decrease in the probability of finding a job is especially sharp for young people.	Women and young males are especially affected by the decrease in the transition from inactivity to employment.

SPAIN
(the steady-state unemployment rate would increase by 14.5 pp)

All population groups experienced job loss, but males experienced it to a greater extent. All population groups experienced a decrease in the probability of gaining access to employment, but individuals under 45 years old experienced it to a greater degree.	Moving from unemployment to inactivity decreased for all individuals with a low educational attainment level. The probability of moving from inactivity to employment decreased for young people. The probability of moving from inactivity to unemployment increased for women with medium and low educational attainment levels.

SOURCE: Banco de España.

%

| Country	Years	Employment-unemployment	Unemployment-employment	Employment-inactivity	Inactivity-employment	Unemployment-inactivity	Inactivity-unemployment
Austria	2006-2008	2.0	41.4	4.4	21.9	30.8	2.8
	2009	2.6	38.3	4.4	23.5	32.5	2.9
	2006-2009	2.2	40.7	4.4	22.3	31.2	2.8
Belgium	2006-2008	2.1	20.4	2.5	7.8	43.8	4.1
	2009	2.6	16.4	2.7	6.4	46.1	4.4
	2006-2009	2.3	19.5	2.5	7.4	44.3	4.1
Germany	2006-2008	2.5	28.6	2.1	15.5	20.0	4.1
	2009	3.0	27.6	2.2	16.4	26.0	4.1
	2006-2009	2.6	28.4	2.1	15.7	21.3	4.1
Denmark	2006-2008	1.5	46.8	3.3	28.7	31.1	5.1
	2009	3.6	45.5	3.7	26.6	29.8	6.9
	2006-2009	2.0	46.5	3.4	28.2	30.8	5.5
France	2006-2008	3.1	34.0	3.8	10.4	26.2	4.2
	2009	4.0	29.8	4.8	9.6	28.1	4.7
	2006-2009	3.3	33.1	4.1	10.2	26.6	4.3
Greece	2006-2008	1.6	24.7	1.4	3.2	11.9	3.0
	2009	2.7	23.1	1.4	3.2	11.1	3.7
	2006-2009	1.8	24.3	1.4	3.2	11.7	3.2
Italy	2006-2008	1.4	30.3	3.0	5.6	43.5	2.8
	2009	2.1	24.2	3.3	4.3	46.3	2.7
	2006-2009	1.6	28.7	3.1	5.3	44.2	2.8
Portugal	2006-2008	2.7	39.3	1.7	6.1	10.4	2.9
	2009	4.1	34.5	1.9	5.8	11.0	2.7
	2006-2009	3.0	38.1	1.7	6.0	10.5	2.8
Sweden	2006-2008	1.6	52.2	2.5	30.1	18.1	8.2
	2009	3.2	40.7	3.1	24.9	20.5	9.3
	2006-2009	2.1	48.5	2.7	28.3	18.9	8.6
United Kingdom	2006-2008	2.1	46.4	3.1	16.5	16.4	5.6
	2009	3.8	39.7	3.0	15.1	13.2	6.8
	2006-2009	2.5	44.6	3.1	16.1	15.5	5.9
Spain	2006-2008	4.0	42.0	3.4	10.0	22.3	6.0
	2009	8.9	28.4	3.7	6.6	17.3	7.7
	2006-2009	5.2	37.5	3.5	9.2	20.6	6.4

SOURCES: EU-LFS and Banco de España.

loss, with the result that individuals with university studies, irrespective of gender or age, did not see an increase in the probability of moving from employment to unemployment. Factors explaining this result are likely to be government policies which have encouraged a reduction in the number of hours worked over job destruction, together with the fact that in many of these countries the skilled labour shortage has boosted incentives for firms to hoard their most highly qualified employees in the face of a temporary slowdown.[9]

In Spain, as in other European countries, a relatively stronger rise in the probability of job loss for men than for women can be observed, which may be related to the Spanish

9   See "Determinants of the asymmetrical behaviour of employment in the euro area". *Annual Report*, 2010, Banco de España.

PANEL A: INCREASE IN THE PROBABILITY OF MOVING FROM EMPLOYMENT TO UNEMPLOYMENT
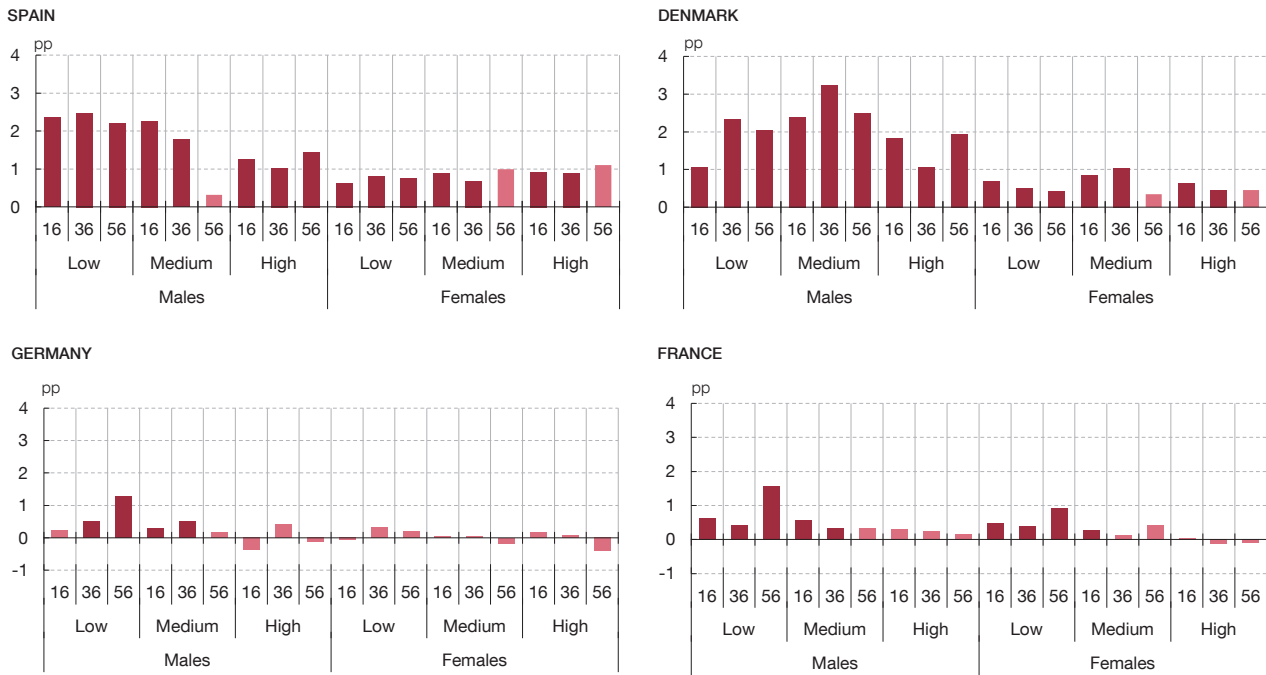
PANEL B: INCREASE IN THE PROBABILITY OF MOVING FROM UNEMPLOYMENT TO EMPLOYMENT
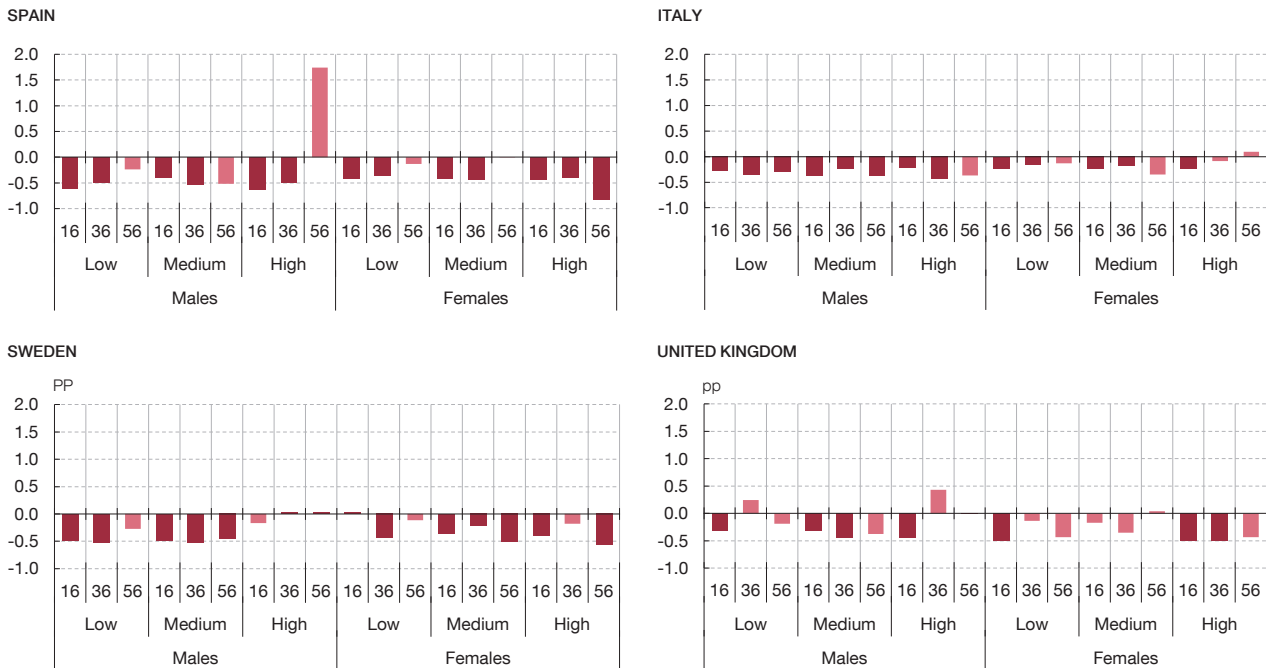
The lighter bars indicate that the coefficient does not differ significantly from zero.

SOURCES: EU-LFS and Banco de España.

NOTE: each bar can be interpreted as the percentage points by which the probability of moving from one state in the labour market to another increases or decreases during the crisis.
Each chart depicts the results of the 18 dummy variables included in the estimate resulting from matching gender (male and female), educational attainment level (low, medium and high) and age (16-35, 36-55 and 56-65) with the dichotomic variable referring to the fact that the observation is from the 2009 sample.

economy's specialisation in the construction sector. However, in the case of Spain, the educational attainment level did not mean a relatively lower incidence of the probability of job loss, which may be explained by the fact that in Spain there is no relative skilled labour shortage which could account for the "hoarding of skilled workers" seen in Germany. Thus, due to the educational boom of the eighties and nineties, in Spain the replacement rate of employees with university studies (defined as the ratio between the 25 to 34 age cohort in the labour force and the 50 to 59 age cohort with university studies) is higher than 2.4, compared with 0.9 in Germany.

TRANSITIONS FROM
UNEMPLOYMENT TO
EMPLOYMENT

The probability of finding a job decreased at aggregate level in most of the countries considered, except for Germany, Denmark and Greece, where it remained in 2009 at very similar levels to those in the pre-crisis period. However, in those countries where this probability did decrease, two different patterns emerge (Panel B of Chart 3). On one hand, in Spain, Italy and Sweden the adjustment had a uniform effect on the different demographic groups considered, while, on the other, in the United Kingdom and Belgium it was centred fundamentally on the youngest unemployed. Being aware of this is fundamental for correctly designing active employment policies which help to recover the employability of those population groups most affected by the crisis, especially in a scenario of tight budget restrictions in which it is vital to devise more effective active policies and, therefore, more tailored to the profile of the unemployed with the greatest difficulties in finding a new job.

Flows between activity and labour inactivity: a demographic breakdown

A new development in the adjustment of European labour markets at the onset of the crisis is that, contrary to previous recessionary phases, the labour participation rate has not decreased significantly in most countries. Given the demographic breakdown of the flows between activity and labour inactivity certain conjectures can be made about the causes of this change.

TRANSITIONS FROM ACTIVITY
TO INACTIVITY

In past recessions, the probability of moving from employment to inactivity used to increase essentially among the groups of workers close to retirement age. However, during 2009, despite observing an increase in the probability of transition to inactivity from employment, on this occasion it has not been led by the oldest cohorts but by the youngest ones (Panel A of Chart 4). In fact, government reforms, due to debt sustainability problems, have targeted extending working lives more than encouraging early retirements, as occurred in previous recessions and, consequently, public and private retirement incentives decreased. Also, the sharp fall in stock market prices has prompted many workers to delay their decision to retire pending the recovery of the value of their pension funds.

The unemployment-inactivity flow is traditionally associated with what the literature calls the "discouragement effect", namely, after a long period of looking for work the unemployed are discouraged due to their lack of success and stop looking, they go back into the education system or avail themselves of early retirement programmes. Since the data are only available to 2009, it is probably too soon to see substantial changes in the probability of moving from unemployment to inactivity, although two exceptions are observed in opposite directions: Germany and Spain. Thus, while in Germany there has been an increase in the probability of moving from unemployment to inactivity (essentially among the middle-aged unemployed), in Spain the unemployed with a lower educational attainment level, irrespective of gender and age, were not affected by this effect and their propensity to continue to look for work increased with the consequent increase in the unemployment rate (Panel B of Chart 4).
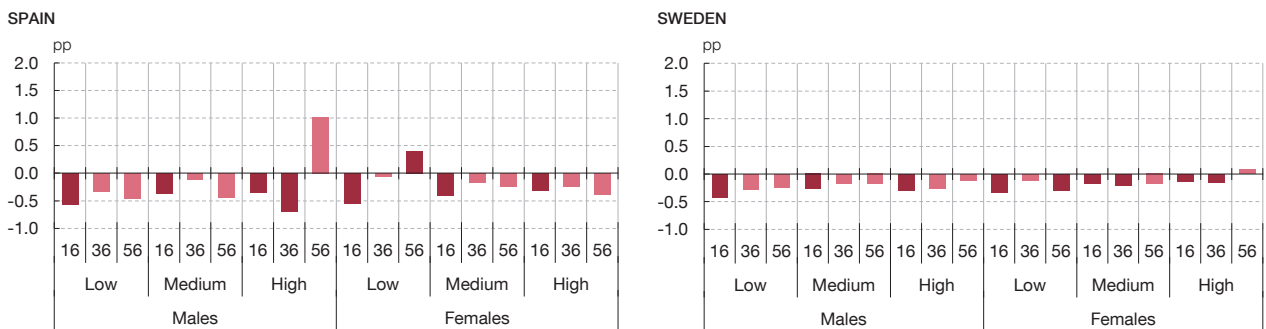
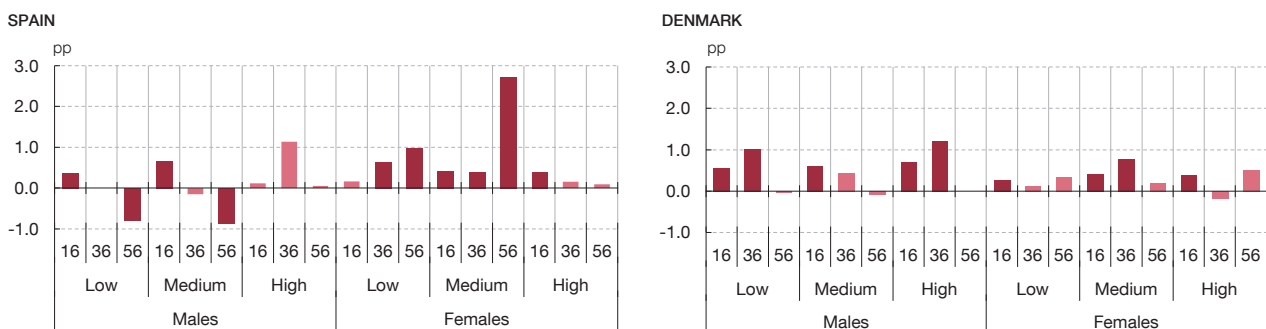**PANEL A: INCREASE IN THE PROBABILITY OF MOVING FROM EMPLOYMENT TO UNEMPLOYMENT**
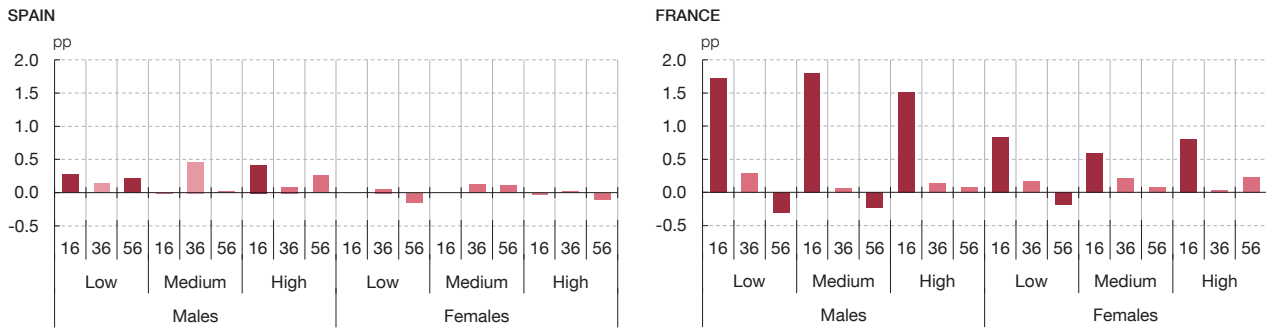
PANEL B: INCREASE IN THE PROBABILITY OF MOVING FROM UNEMPLOYMENT TO INACTIVITY
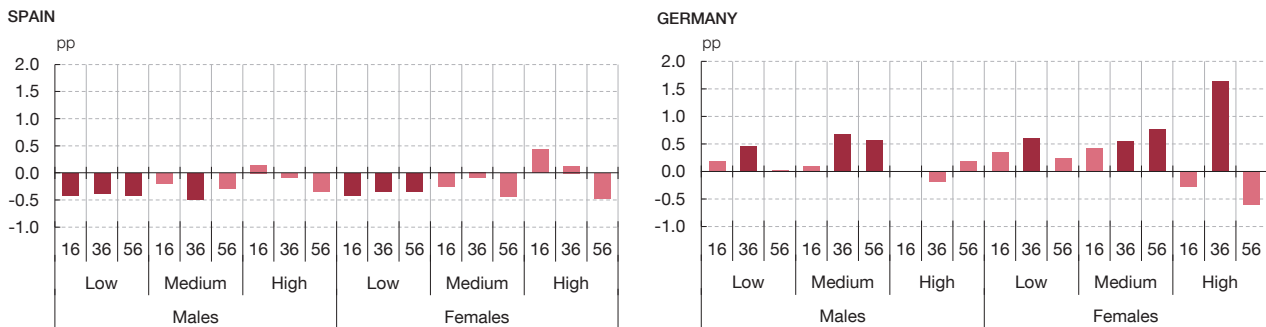
PANEL C: INCREASE IN THE PROBABILITY OF MOVING FROM INACTIVITY TO EMPLOYMENT

PANEL D: INCREASE IN THE PROBABILITY OF MOVING FROM INACTIVITY TO UNEMPLOYMENT

The lighter bars indicate that the coefficient does not differ significantly from zero.

SOURCES: EU-LFS and Banco de España.

NOTE: each bar can be interpreted as the percentage points by which the probability of moving from one state in the labour market to another increases or decreases during the crisis.
The results of the 18 dummy variables are represented in each chart. These dummy variables are included in the estimate resulting from matching sex (male and female), educational attainment level (low, medium and high) and age (16-35, 36-55 and 56-65) with the dichotomic variable referring to the fact that the observation is from the 2009 sample.

Changes in the probability of entering the labour force through employment are closely tied to changes in the probability of joining the labour force through unemployment, since a decrease in the former – a reduction in job opportunities – will be immediately reflected in an increase in the latter.

This is precisely what has been observed, with some exceptions (Austria and Germany), in most of the countries analysed during 2009; it is the youngest cohorts that have led the adjustment of the probability of moving from education to employment, having to begin their working lives as part of the unemployed (Panel C of Chart 4).

Furthermore, in Spain an additional effect can be seen on the probability of moving from inactivity to unemployment: the additional worker effect. Thus, as the incidence of unemployment has had a greater effect on households,[10] traditionally inactive members (especially women) have started to look for work to a greater extent (Panel D of Chart 4).

Conclusions

The results obtained in this article show how the increase in unemployment rates in most EU countries during the early stages of the crisis masked very different behaviour with regard to labour flows between the different statuses of activity – employment, unemployment and inactivity – and, fundamentally, in respect of the demographic characteristics of the individuals driving each of these flows.

Thus, for example, in Denmark the increase in the unemployment rate during 2009 (of 3 pp) is mostly due to the increase in the probability of job loss for all the population groups analysed; but also, albeit to a lesser degree, to the probability of joining the labour force through employment declining substantially among young people who completed their studies and began their working lives as part of the unemployed. However, in Belgium, where the rise in the unemployment rate was 2 pp, the contribution of the probability of job loss was much lower than in the case of Denmark (by around 50%) and, furthermore, exclusively affected males. The remainder of the increase in the Belgian unemployment rate was prompted by the reduction in the probability of finding a job among young unemployed males and inactive males.

These findings indicate that, although in many EU countries similar deteriorations have been observed in unemployment rates, the origin of this rise may be quite mixed. Consequently, the design of employment policies and institutional reforms of the labour market to combat the rise in unemployment and its persistence, should take into account the specific characteristics in this respect of each country. Although presenting employment policy proposals and institutional reforms for the Spanish case is beyond the scope of this article, the results described here show that a clear dysfunctionality exists which in recessionary phases causes higher job destruction and lower job creation than in other European countries. Consequently, measures aimed at correcting this dysfunctionality should have a prominent place on the economic policy agenda.

18.11.2011.

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10   See Casado et al. (2010), "La incidencia del desempleo en los hogares", *Boletín Económico*, November, Banco de España.

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