# Regional and gender differentials in the persistence of unemployment: initial conditions and path dependence

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# Introduction

- Unemployment has been growing over the last few years as the great recession has deepened (Pissarides, 2013).
- This phenomenon has primarily affected the young component of the labour force and has widen regional and gender differentials.
- These impacts have been diversified within Europe, thus suggesting that the economic downturn caused heterogeneous impacts on employment and unemployment in European countries (OECD, 2008).
- In addition, unemployment duration and persistence increase significantly suggesting the need for policy aiming at increasing employment opportunities on the whole and in particular for young people.

# Aim & Contribution

- It is crucial to analyse different institutional frameworks which may emphasize different reactions and impacts of the economic downturn within Europe.
- We analyse such effects by considering four European countries, Italy, Spain, France and the UK.
- Those countries reflect on the - one hand - the continental European framework and - on the other hand - the UK which represents the Anglo-Saxon institutional context.
- This diversified approach enables us to highlight the diversified impact of the great recession in these different frameworks, thus providing useful suggestions for policy intervention.

# Data

We use EU-SILC panel data for Italy, Spain, France, and the UK:

- The topics covered by the survey are living conditions, income, social exclusion, housing, work, demography, and education.
- We focus on the population aged 15 to 64 years interviewed in the period 2007-2010.
- The models are estimated separately by country.
- The effective (balanced) sample sizes are 17,930 in Italy, 13,421 in Spain, 20,709 in France, and 5,084 in the UK.

We are interested in the estimation of the impacts of different factors on the persistence in the state of unemployment across countries.

| | ITALY | SPAIN | FRANCE | UK |
|---|---|---|---|---|
| Unemployment | 0.075 | 0.105 | 0.066 | 0.025 |
| Lagged unmployment | 0.074 | 0.094 | 0.065 | 0.023 |
| Male | 0.489 | 0.481 | 0.477 | 0.460 |
| *Region* | | | | |
| Region 1[(a)] | 0.416 | 0.316 | 0.115 | 0.118 |
| Region 2[(b)] | 0.218 | 0.684 | 0.885 | 0.882 |
| Region 3[(c)] | 0.366 | | | |
| *Age* | | | | |
| Age [15.24] | 0.116 | 0.120 | 0.116 | 0.074 |
| Age [25.34] | 0.183 | 0.190 | 0.164 | 0.151 |
| Age [35.44] | 0.253 | 0.246 | 0.248 | 0.263 |
| Age [45.54] | 0.256 | 0.259 | 0.251 | 0.261 |
| Age [55.64] | 0.193 | 0.185 | 0.221 | 0.250 |
| *Education* | | | | |
| None. elementary. or lower secondary | 0.431 | 0.259 | 0.259 | 0.121 |
| Upper secondary | 0.392 | 0.460 | 0.460 | 0.447 |
| Post secondary or tertiary | 0.177 | 0.280 | 0.280 | 0.370 |
| Married | 0.597 | 0.544 | 0.544 | 0.597 |
| Number of kids 0-3 | 0.074 | 0.080 | 0.080 | 0.093 |
| | *(0.275)* | *(0.283)* | *(0.286)* | *(0.307)* |
| Equivalised Household Income | 18.323 | 14.485 | 22.224 | 24.168 |
| | *(12.422)* | *(9.039)* | *(15.572)* | *(20.269)* |
| Delta employment rate 2006-2007 | 0.329 | 0.981 | 0.372 | -0.031 |
| | *(0.387)* | *(1.252)* | *(1.939)* | *(1.750)* |
| Observations | 17,930 | 13,421 | 20,709 | 5,084 |

- The probability of an individual being unemployed is estimated by applying a random effects dynamic probit model on a balanced sample.
- The inclusion of the previous employment status allows both to disentangle the contribution to unemployment probabilities of unobserved heterogeneity and past unemployment (state dependence).
- With the aim of providing consistent estimates, we follow the method proposed by Heckman (1981).
- This latter explicitly account for the initial conditions problem by approximating the unknown initial conditions with a static equation using information from the first wave available in the data.

- In addition, the literature (Akay, 2012) showed that the Heckmans estimator performs better for short panel than other estimators, i.e., Woolridge (2005).
- To obtain an estimate of the extent of state dependence and the impact of individual and household control variables as percentage effects, we calculated the average partial effect (APE).
- We follow the method suggested by Stewart (2007).

- The first exercise include a dummy variables for gender and specific dummy variables for education, whilst the second exercise includes interactions between gender and education.
- The aim of the first exercise is to disentangle the impact of gender and education, whereas the second exercise is to obtain the joint impact of gender and education on the probability of remaining unemployed.

## APE for the Persistence of Unemployment by Country, 2007-2010

| | ITALY | SPAIN | FRANCE | UK |
|---|---|---|---|---|
| Lagged unemployment | 0.112*** | 0.230*** | 0.525*** | 0.175*** |
| Male | -0.008 | 0.020 | 0.011 | 0.039*** |
| *Region* | | | | |
| Region 1[(a)] | -0.070*** | -0.075*** | -0.048* | -0.008 |
| Region 2[(b)] | -0.047*** | | | |
| *Age: Reference – [15, 24]* | | | | |
| Age [25,34] | -0.005 | 0.047* | 0.009 | -0.046* |
| Age [35,44] | -0.049*** | -0.040 | -0.038* | -0.071*** |
| Age [45,54] | -0.073*** | -0.100*** | -0.075*** | -0.066*** |
| Age [55,64] | -0.097*** | -0.130*** | -0.078*** | -0.071 |
| *Education: Reference - Primary* | | | | |
| Upper secondary | 0.001 | -0.111*** | -0.070*** | 0.006 |
| Post secondary or tertiary | 0.035*** | -0.148*** | -0.129*** | 0.016 |
| Married | -0.085*** | -0.047* | -0.065*** | -0.021 |
| Number of kids 0-3 | 0.000 | 0.035 | -0.050* | -0.044* |
| Equivalised Household Income | -0.008*** | -0.007*** | -0.002*** | -0.020*** |
| Year 2009 | 0.014* | 0156*** | 0.048*** | 0.022 |
| Year 2010 | 0.009 | 0.140*** | 0.039*** | 0.018 |
| Observations | 17,930 | 13,421 | 20,709 | 5,084 |

## APE for the Persistence of Unemployment, interactions between Gender and Education

| | ITALY | SPAIN | FRANCE | UK |
|---|---|---|---|---|
| Lagged unemployment | 0.112*** | 0.233*** | 0.525*** | 0.367*** |
| *Gender and Education interactions: Reference – low educated females* | | | | |
| Low educated males | -0.041* | 0.040* | 0.019 | 0.080* |
| Middle educated males | -0.049* | -0.099*** | -0.052* | 0.069* |
| Highly educated males | -117*** | -0.125*** | -0.123*** | 0.059* |
| Middle educated females | -0.056*** | -0.087*** | -0.069*** | 0.002 |
| Highly educated females | 0.051*** | -0.132*** | -0.113*** | 0.038 |
| *Region* | | | | |
| Region 1[(a)] | -0.070*** | -0.077*** | -0.048* | -0.008 |
| Region 2[(b)] | -0.047*** | | | |
| *Age: Reference – [15, 24]* | | | | |
| Age [25,34] | -0.004 | 0.050* | 0.008 | -0.053* |
| Age [35,44] | -0.049*** | -0.038 | -0.038* | -0.085*** |
| Age [45,54] | -0.072*** | -0.099*** | -0.075*** | -0.078*** |
| Age [55,64] | -0.097*** | -0.128*** | -0.078*** | -0.081*** |
| Married | -0.085*** | -0.049*** | -0.065*** | -0.024 |
| Number of kids 0-3 | 0.000 | 0.035 | -0.051* | -0.054* |
| Equivalised Household Income | -0.008*** | -0.007*** | -0.002*** | -0.018*** |
| Year 2009 | 0.014* | 0157*** | 0.048*** | 0.028 |
| Year 2010 | 0.009 | 0.141*** | 0.039*** | 0.019 |
| Observations | 17,930 | 13,421 | 20,709 | 5,084 |

- The regional effect is significant and relevant in Italy, as being in the North and Centre reduces the probability of remaining unemployed by more than 7% and 4% respectively.
- Regional effects are also significant in Spain: the population of Comunidad Valenciana and Region de Murcia does show a higher propensity (7.5%) to remain unemployed compared with the rest of the country.
- Regional effects are significant in France and the impact is similar to that observed for the disadvantaged regions in Spain.
- In the UK, instead, the regional effects are negligible.

The evidence derived from the estimates suggest that:

- State dependence is significant but its impact on the probability of remaining unemployed varies widely across countries.
- Gender differentials are still significant in Italy (disadvantage for females) and in the UK (disadvantage for males).
- The effect of age is negative, thus suggesting the need for policy targeted towards the young labour force.

- Marital status is significant in reducing the probability of remaining unemployed. Parenthood shows a not negligible and negative impact only in France, suggesting that fiscal policies aimed at improving households real disposable income and female fertility rate, may exert a significant effect on unemployment.
- Disposable income has a negative effect on unemployment persistence, thus suggesting the relevance of policy towards specific low income brackets households.

- Italy: (1) North, (2) Centre and (3) South (base category).
- Spain: (1) Comunitad Valenciana, Andaluca, Regin de Murcia, Ciudad Autnoma de Ceuta, Ciudad Autnoma de Melilla and Canarias, (2) rest of the country.
- France: (1) Nord-Pas-de-Calais and Languedoc-Roussillon, (2) rest of the country.
- UK: (1) Northumberland and Tyne and Wear, South Yorkshire, West Midlands, and South Western Scotland, (2) rest of the country.