CRISEI

Centro di Ricerca Interdipartimentale in Sviluppo Economico e Istituzioni

DISCUSSION PAPER SERIES

The Unemployment Gender Gap in a Comparative Perspective

Maurizio Baussola
Jamie Jenkins
Chiara Mussida
Matthew Penfold

Discussion Paper
No. 05
March 2015
ISSN: 2280-9767

CRISEI - Università di Napoli - Parthenope

Università di Napoli - Parthenope

CRISEI

The Unemployment Gender Gap in a Comparative Perspective

Maurizio Baussola*
Jamie Jenkins**
Chiara Mussida*
Matthew Penfold**

* Catholic University of Sacred Heart, Piacenza, Italy
** Office for National Statistics, United Kingdom

Palazzo Pacanowski - Via Generale Parisi, 13 - 80132 – Napoli (Italy)
Tel. (+39) 081 547 51 69
URL: http://www.crisei.uniparthenope.it/DiscussionPapers.asp

The Unemployment Gender Gap in a Comparative Perspective

Maurizio Baussola, Jamie Jenkins, Chiara Mussida and Matthew Penfold

Abstract

This paper analyses the unemployment gender gap by using a three-state labour market model (Employment, Unemployment, Inactivity) which enables us to determine the equilibrium (steady-state) unemployment rate and the contribution that a single transition probability from each state makes to the unemployment differentials between males and females. This investigation falls within a comparative framework, in that we apply our methodology to the Italian and the UK labour markets. This comparison is relevant in that it considers two diversified institutional contexts, one typical of the so called Anglo-Saxon model, characterised by more flexible labour market legislations, and the continental model, which in contrast involves tighter legislative controls and more restrictive institutions. The analysis draws on the Italian and the UK Labour Force Surveys for the period 2006-2013. In addition, we propose an econometric model which enables us to estimate the determinants of the unemployment gender gaps, in order to pinpoint the relative role of individual characteristics (age, human capital) and other structural factors in determining such a gap.

*JEL Classification***:** C21, C41, J16, J31, J71

*Keywords***:** unemployment gender gap, differentials, multinomial models, transition probability matrix.

Introduction

The sharp increase in the unemployment rate during the recent economic downturn poses a number of different issues for researchers and policy makers dealing specifically with the role of structural vis-à-vis cyclical factors in determining an upturn. In this framework it is relevant to analyse an old but still relevant issue which has been largely understated over the last decade, i.e. the role of gender differentials.

The unemployment gender gap, i.e. the difference in male and female unemployment rates, has again started to receive attention only recently, after last being considered as a relevant economic and policy issue in the ’70s and early ’80s. The seminal papers by Martson (1976) and Clark and Summers (1979) are clear examples of that debate, which also included the role of ethnic factors as determinants of structural differences in the unemployment rate in the US. However, succeeding literature has concentrated mainly on other aspects of gender differentials, e.g. the male-female gap in the participation rate or the earning gap.

It is only since the second half of the 2000s that the unemployment gender gap has regained the attention that it deserves, with attention also focusing on international comparisons highlighting different patterns between the OECD economies. The study by Azmat, Guell and Manning (2006) emphasizes the different unemployment gender gaps in the European countries and the US using micro data collected from the European Community Household Panel Survey (ECHPS) and the Current Population Survey (CPS). They found that in countries where the gap is relatively high, i.e. the female unemployment rate is significantly higher than that for males, there is a significant difference in the gender gap in the flows from employment into unemployment and vice-versa. In addition, they show that in countries which show higher female participation rates, the unemployment gap is smaller. However, they also underlined the fact that in many European countries, in particular in southern Europe, this gap has increased despite a rise in the female participation rate over the past decades, thus suggesting that institutional factors can play a crucial role in determining such a persistence gap.

More recently it has been evidenced that the gender gap has decreased even more because of the effect of the economic recession, which has primarily affected the male component of the labour force (Sahin et al 2010) due to its impact on the construction and finance industries, in which the

major component of the workforce is male.

Given this framework, we analyse the unemployment gender gap comparing the patterns of the Italian and the UK economies. The analysis is relevant as these two countries represent different institutional frameworks with different labour institutions and regulations. Italy has a typically southern European labour market, partitioned into segments characterised by significantly different levels of employment protection, and therefore different labour costs. The UK has a typically Anglo-Saxon labour market characterised by less employment protection legislation. It is worth noting that despite these intrinsic differences, both labour markets reveal overall high labour mobility, but this affects the labour forces in different ways. In particular, there is still a significant unemployment gender gap in the Italian labour market which underlines the disadvantage of the female component of the labour force; although this has decreased with respect to the '80s, it is still a structural characteristic.

We extend the analysis by Baussola (1985,1988) and Baussola and Mussida (2011, 2014) to provide more detailed and updated evidence of the determinants of labour market flows and, therefore, of the unemployment gender gap. We propose a decomposition of the gap which enables us to measure the marginal contribution of each labour market movement, i.e. from employment, unemployment and inactivity. In addition, we provide econometric estimates of these flows, which enable us to highlight their determinants and thus their impact on the unemployment gender gap, the latter in turn affected by the level of human capital, age, and other structural factors such as regional areas of residence.

Our analysis draws on the Italian and the UK Labour Force Surveys (LFS). These data sets have to be preferred with respect to the European Community Household Panel (ECHP) survey that took place in the 90s or the more recent European Union Statistics on Income and Living Conditions (EU-SILC) survey, as the latter reveal labour market flows only retrospectively. This fact may cause significant measurement errors related to possible misclassification, in particular with respect to unemployment status. Typically, the persistence rate in unemployment, i.e. the percentage of individuals who remain unemployed in a given interval (e.g. quarter or year), is significantly higher when calculated using the ECHP or EU-SILC data with respect to the LFS data. The latter, although not immune from possible misclassification, are specifically tailored to measure both labour market stocks and flows, whereas the ECHP and EU-SILC surveys are mainly tailored to investigate

households' economic conditions, and thus an individual's labour force status can be derived only indirectly.

The paper proceeds as follows. Section 1describes stylized facts on the labour market in Italy and the UK. Section 2describes the data sets used and offers (and discusses) the empirical results on the determinants of the components of our decompositions. Section 3 describes the methodological framework adopted for the decomposition of the unemployment gender gap, and the results for Italy and the UK. Section 4 concludes.

1. Stylized facts

Before analyzing in more details the determinants of the unemployment gender gap, it is worth recalling the main stylized facts that characterize the labor market in Italy and the UK.

Figure 1 and figure 2 provide the pattern of the male and female unemployment rate since the beginning of the '90s in the two countries.

The stylized pattern of male and female unemployment in the two countries implies counter evidences, in that the unemployment rate for women is higher with respect to that of men in Italy, whereas the reverse condition applies in the UK. Also, the relative values of the unemployment rate do show a significant difference between the two labor markets. Interestingly, the condition of men in Italy is being better - on average – than the corresponding condition of men in the UK, although the unemployment rate has increased sharply in Italy over the recession.

The female unemployment rate in the UK is far below that prevailing in Italy; the average rate over the entire period is around 7.5% in the UK and around 12.5% in Italy.

In both frameworks the gender gap reduces over time, although this reduction is more significant in the UK. The gender gap decline over the last few years in Italy, crucially depends on the worsening macroeconomic conditions due to the great recession, which has dramatically worsen employment opportunities for men.

Figure 1. *Unemployment differential by gender in Italy, 1993-2012*

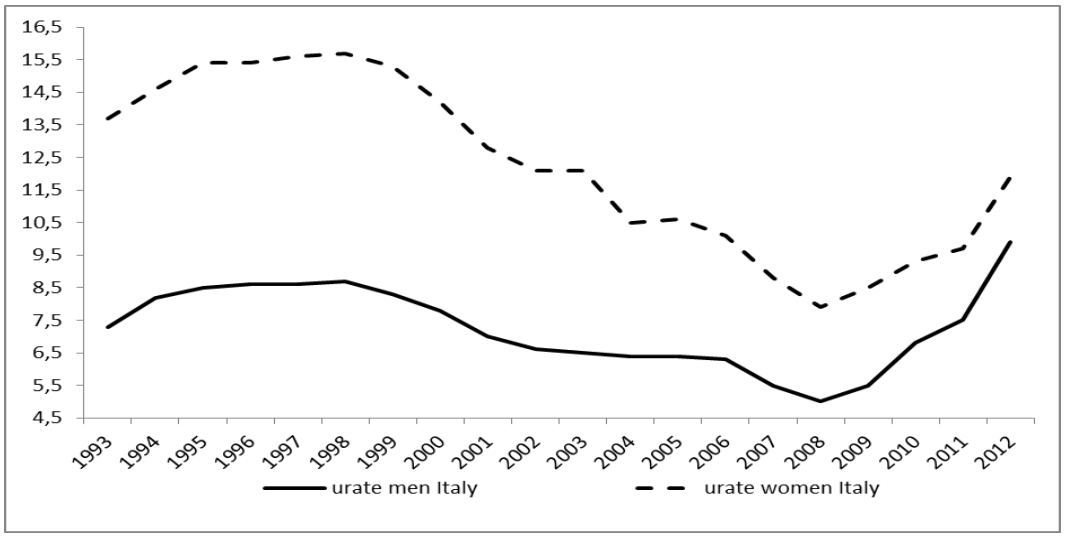
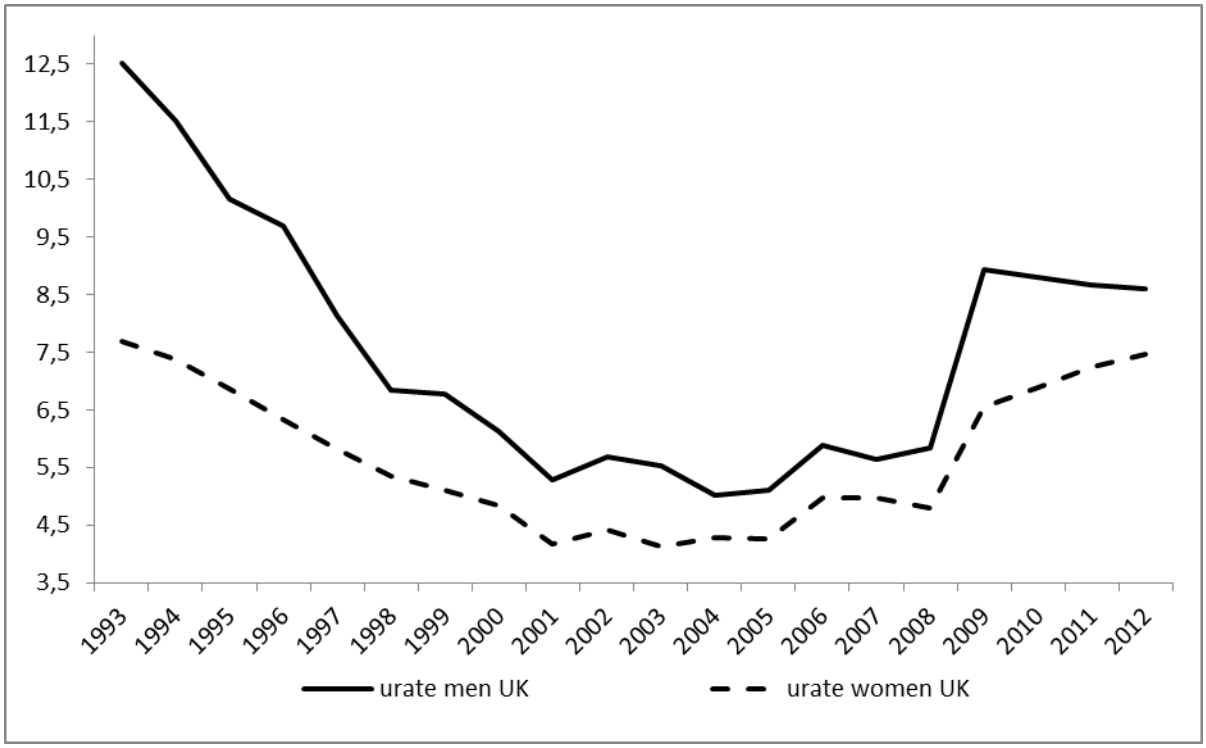


Figure 2. *Unemployment differential by gender in the UK, 1993-2012*



2. Data

The empirical analyses of the determinants of the unemployment gender gap (Section 2) and its decomposition (Section 3) exploit longitudinal data for Italy and the UK provided by the National Institutes of Statistics.

For Italy, we use longitudinal data (2006-2013) derived from the Labour Force Survey set up by the Italian National Institute of Statistics (ISTAT). Each quarter, the Survey collects information on almost 77,000 households in 1,246 Italian municipalities for a total of 200,000 individuals. Technical details on the survey are provided in Appendix Section A-1.[1]

Information on the UK labour market comes from the Labour Force Survey developed by the Office for National Statistics (ONS). It is a quarterly survey in which households are interviewed for five consecutive quarters. Approximately 20% of the sample is replaced every quarter. The sample is made up of about 41,000 responding UK households per quarter.[2] With the use of proper population weighting procedures, the LFS is intended to be representative of the entire population of the UK.[3]

2.1 The determinants of the unemployment gender gap

The empirical results of our analyses on both countries are based on multinomial logit model estimates. We specify a separate model for each labour market state by assuming a simple three-state representation (employment, unemployment, and inactivity), and by assuming independence of the outflows from each of the three labour market states. The dependent variables utr, etr and itr thus refer to the outflows from the states of unemployed, employed and inactive, respectively.

Let $h = 1, \ldots, n$ be the indices for the h-th individual in the sample; let us define the conditional individual transition probability from state a to state b at time t as:

[1] The most recent changes in the definitions and design of the survey occurred in 2004. The changes, primarily dictated by the requirement to adapt the survey to new EU standards, were also intended to respond to the need for increased knowledge and improved survey quality. For a more detailed discussion of the characteristics of the Italian LFS, see ISTAT (2006 and 2009).

[2] Additional details on the LFS are available in the National Statistics website at http://www.ons.gov.uk/ons/search/index.html?newquery=LFS+user+guides.

[3] The LFS uses calibration weighting. The weights are formed using a population weighting procedure which involves weighting data to sub-regional population estimates and then adjusting for the estimated age and sex composition by region. Further details on the weighting methodology are available at http://www.ons.gov.uk/ons/search/index.html?newquery=LFS+user+guides.

$$p_{ab,t(h)} = Pr\left(X_{t,h} = b | X_{t-1,h} = a, z_{t,h}\right) \quad (1)$$

where $X_{t,h}$ is the random variable describing the state of individual h at time t that can take the values l = 0, 1, 2 with 0 being unemployment, 1 employment and 2 the non-labour force; $z_{t,h}$ is a vector including individual-level covariates. The values of covariates are defined at the beginning of the period considered for the transitions. The model for the transition probabilities can be written as follows:

$$p_{ab,t(h)} = \frac{exp\{z_h^t \beta_l\}}{\sum_{l=0}^{2} exp\{z_h^t \beta_l\}} \quad (2)$$

where, conventionally we set β_0 = 0, thus assuming permanence in the initial state as the baseline category. Model parameters are estimated using Maximum Likelihood.[4]

The determinants of labour market flows have been analysed both at the macro and micro level, in particular from the end of the '70s and during the '80s. Junankar and Price (1984) and Nickell (1982) estimated the determinants of unemployment inflows and outflows in the UK, whereas Baussola (1988) focused on the Italian labour market. The main finding of such analyses implies that labour cost, structural change variables (i.e. service and manufacturing employment ratios), labour demand and supply factors (unemployment benefits and vacancies) and unemployment duration do affect such flows.

Microeconomic analysis also focused on approaches typically referring to the search theory (e.g., Mortensen, (1977) and Narendranathan and Nickell (1985)), developed search-based models in which unemployment duration and, therefore, unemployment outflows, are the results of search activities of workers.

The characteristics of our dataset enable us to set up an econometric framework which combines labour demand and supply factors together with other possible structural determinants. However, such proxies of labour demand and supply factors are partially limited as, for instance, we do not

[4] A detailed technical description of the Maximum Likelihood method in this context can be found in Gourieroux (1989, chap. 5), and Cameron and Trivedi (2005, chap. 15).

have unemployment benefit or vacancies estimates.

Taking into account these unavoidable characteristics of our datasets, we have proceeded to set up an econometric model which explains employment, unemployment and inactivity outflows and inflows.

Explanatory variables may be grouped into supply determinants reflecting individual characteristics which are related to gender and education,[5] age, unemployment duration, employment related characteristics, like the sector of employment (whether public or private), the skill level of the job, and whether jobs are characterized by full-time or part-time contracts. We also consider yearly dummy variables to capture time-specific effects related to business cycle variations.

The purpose of our econometrical exercise is twofold. First, we investigate the determinants of labour market flows in Italy and in the UK. Then, we examine discrepancies and similarities between specific outflows determinants, especially the interactions between gender and education and the relevance of age, by comparing the results obtained across countries.

The estimates cover the period 2004-2013. We decided to divide the overall period in two time periods, pre-recession and recession, respectively, in order to examine the possible effects of the recent crisis on the labour market dynamics. For both Italy and the UK, pre-recession covers the period from 2004 to 2008-2009, whilst recession covers the period from 2009 to 2013.

Table 1 displays relative-risk ratios (rrr)[6] estimates for the determinants of unemployment outflows by time period and country. In Italy the impact on gender unemployment was asymmetric. This is confirmed by our estimates. The relative risk of successful exit from unemployment (UE) is higher for male with tertiary education (by a factor of 1.319) with respect to highly educated female before the crisis, whilst the rrr is not significant over the recession. In addition, whilst before the crisis female with secondary education move less frequently from unemployment to employment with respect to highly educated females, the rrr is not significant during the recession. These findings for Italy do offer suggestions in two directions. First, the crisis hit more sectors typically characterized by male employment. Second, the education loses its role

[5] As it will be explained below, we introduce specific interactions between gender and educational attainment to obtain the joint effect of gender and education.

[6] The estimated coefficients β of the multinomial logit model are transformed to relative-risk ratios, that are e^{β}. The exponentiated value of a coefficient is the relative-risk ratio for a unit change in the corresponding variable (risk is measured as the risk of the outcome relative to the base outcome).

in enhancing employment opportunities over the crisis. For the UK we do not find discrepancies of the interacted impact of gender and education before and over the recession. This confirms our finding of symmetric impact of the crisis on male and female unemployment.

Another discrepancy between Italy and the UK refer to the probability of living unemployment (both successfully and for inactivity) of the young people in the age range 15-24. In Italy, the young people have lower employment opportunities and lower outflows to inactivity (UE and UN, respectively) compared to individuals in the age range 45-54 (reference category). The opposite is true in the UK. The probabilities of leaving unemployment (successfully or for inactivity) are indeed higher for young people than for those aged 40-55, both before and over the crisis.

The two countries are instead similar in terms of the impact of the unemployment duration. For the outflows from unemployment there is evidence of negative duration dependence, especially for the UK.

The rrr for the outflows from employment (Table 2) suggest two discrepancies between countries in terms of gender and education relevance. First, the nature of the unemployment gender gap is different, i.e. in Italy women do suffer of higher unemployment rates compared to men and this contrasts with the UK. Second, the impact of gender and education (interacted) on the employment outflows is higher in the UK, especially for the male component of the labour force.

We also find two similarities among countries. The young people, in both countries – especially in Italy - have higher probabilities of losing their job, either for unemployment or for inactivity. Finally, job characteristics (e.g., skill level of the job, sector of employment and type of contract) have the same impact (on E outflows) in both countries. In general, we find lower outflows from unemployment, for white-collar workers, in the public sector, and with full-time contracts. This is in line with expectations.

Table 3 shows the rrr for inactivity outflows. In general, women in both countries have higher difficulties to leave the state of inactivity with respect to men (as it emerges also in the empirical investigation in Section 4). The role of education in enhancing inactivity outflows seems to be higher in the UK compared to Italy, both before and over the crisis.

In Italy we find that young people are disadvantaged also in terms of inactivity outflows (as for unemployment outflows). People in the age range 15-24 have indeed lower probabilities of leaving the state of inactivity compared to adults (25 years of age and over). Our findings therefore suggest that women and young are disadvantaged in Italy.[7] Young people and female component of the labor force are indeed typically defined as disadvantaged labour market categories in Italy.[8]

This contrasts with the finding for the UK: here the young people have higher probabilities of leaving the state of inactivity, both successfully and for unemployment (NE and NU, respectively).

Table 1: *Outflows from Unemployment by Gender and Education, Italy and UK,2004–2013*

	UE				UN			
	Pre Recession[(a)]		Recession		Pre Recession		Recession	
	IT	UK	IT	UK	IT	UK	IT	UK
gender and education[(b)(c)] interactions - Reference: female with a degree								
IT: male_primary education; UK: male_below GCSE, male_noqualifications	.752**	.422*** .308***	.727**	.450*** .337***	.653***	.483*** .618***	.722**	.449*** .602***
IT: male_secondary education; UK: male_GCSE, male_AS A level, male_other higher education below degree	.776**	.454*** .625*** .646***	.831	.549*** .576*** .905	.761**	.633*** 1.004 .589**	.738**	.600*** .716*** .669***

[7] Disadvantaged Workers are defined by the European Commission Regulation (EC) No. 2204/2012 of 12 December 2002 on the application of Articles 87 and 88 of the EC Treaty to State aid for employment [article 2] as "any person who belongs to a category which has difficulty entering the labour market without assistance". This definition includes: young people, women living in depressed areas, disabled people, migrants and ethnic minorities, long-term unemployed, low-skilled workers, unemployed people over 50, single parents, the formerly convicted, substance abusers.

[8] Italy is characterized by a labor market in which both tightness and flexibility coexists (Baussola and Mussida, 2011, OECD, 2009), and women are still participating at a disadvantage in the labour force. This tendency has lessened over the last decade and the participation rate of women has increased. Nonetheless the gender gap in labour force participation remains wide (Addabbo et al., 2012).

IT and UK male_tertiary education (degree)	1.319**	.825***	1.183	.830***	.811	.521***	.705**	.463***
IT: female_primary education; UK: female_belowGCSE, female_noqualifications	.530***	.415***	.624***	.375***	1.277**	1.294***	1.321**	1.168
		.309***		.288***		1.349***		1.165*
IT: female_secondary education; UK: female_GCSE, female_AS A level, female_other higher education below degree	.792**	.506***	.810	.515***	1.176	1.256***	1.211	1.222**
		.638***		.660***		1.437***		1.183**
		.689***		.716***		1.102**		1.183
duration of unemployment - Reference: less than 3 month								
3 to 6 months	.700***	.546***	.754***	.649***	.972	.651***	.931	.695***
6 to 12 months	.568***	.396***	.623***	.461***	.905	.585***	1.127	.565***
one to 2 years	.437***	.314***	.445***	.342***	.813**	.606***	.917	.537***
over 2 years	.295***	.140***	.306***	.232***	.950	.586**	.991	.491***
age - Reference: 40(45)-54 for UK (IT)								
[15,24]	.870	1.147***	.787**	1.104**	.727***	1.304***	.731***	1.306***
IT: [25,34]; UK: [25,39]	.868**	1.072	.976	1.003	.618***	1.147***	.745***	.995
IT: [35-44]	.945		1.078		.770***		.863**	
Time dummies - Reference: 2004 (2009)[(a)]								
2005 (2010)	1.080	.879	1.161**	.925	1.011	.892	1.204**	.928
2006 (2011)	1.126	.882***	1.000	1.007**	1.273***	.925	.951	.918***
2007 (2012)	1.156**	.865***	.756***	.901	1.004	.935	1.108	.718***
2008	.913	.946		1.009	1.027	.975		,846**
constant	2.306***	1.853***	1.602***	1.144**	1.667***	.491***	1.268***	.473***

Notes: * Significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.
(a) We divided the overall period in two time periods, pre and recession, respectively. For both Italy and the UK pre-recession is the period from 2004 to 2008-2009, whilst recession is the period from 2009 to 2012. (b) For Italy, educational dummy indicators refer to the highest and successfully completed educational attainment of a person. The educational classification used to build these indicators is the ISCED 97. We have three categories: primary education (none, elementary or lower secondary educational level), secondary education (upper secondary attainment level), and tertiary education (post secondary or tertiary educational level). (c) For the UK we have six levels: 1 "degree or equivalent", 2 "Other higher education below degree", 3 "AS, A-Level or equivalent, 4 "GSCE or equivalent", 5 "Below GCSE", 6 "No qualifications"

Table 2: *Outflows from Employment by Gender and Education, Italy and UK, 2004–2013*

	EU				EN			
	Pre Recession[a]		Recession		Pre Recession		Recession	
	IT	UK	IT	UK	IT	UK	IT	UK
gender and education[b][c] interactions - Reference: female with a degree								
IT: male_primary education; UK:	1.192	1.455***	1.404***	1.538***	.825***	.565***	.835**	.552***
male_below GCSE,								
male_noqualifications		1.946***		2.060***		.900***		.859
IT: male_secondary education; UK:	.927	1.405***	1.108	1.665***	.681**	.597***	.661***	.610***
male_GCSE, male_AS A level,		1.063**		1.396***		.925**		.916
male_other higher education below								
degree		1.017**		1.481***		.555***		.482***
IT and UK male_tertiary education	.731**	1.096**	.684**	1.169**	.541***	.649***	.487***	.645***
(degree)								
IT: female_primary education; UK:	1.183	1.041	1.260**	1.114	1.705***	1.004	1.402***	.885
female_belowGCSE,		1.133***		1.166		.969		1.105
female_noqualifications								
IT: female_secondary education; UK:	1.169	.905	1.036	1.028	1.206**	.694***	1.104	.740***
female_GCSE, female_AS A level,		.779***		.914		1.019		1.027
female_other higher education below								
degree		.723***		1.011		.714**		.859**
skill level of job - Reference: high skill[a]								
upper middle level		1.201**		1.224***		1.096**		1.040
lower middle level		1.425***		1.330***		1.216***		1.137**
low level	2.251***	1.921***	2.147***	1.547***	1.816***	1.659***	1.788***	1.327***
Public employment	.531***	.547***	.555***	.553***	.593***	.774***	.699***	.788***
Full-Time employment	.475***	.828***	.578***	.764***	.389***	.308***	.402***	.304***
age - Reference: 40(45)-54 for UK (IT)								
[15,24]	4.833***	1.735***	4.284***	1.306***	2.708***	2.255***	3.097***	2.317***
IT: [25,34]; UK: [25,39]	2.360***	.946	2.253***	.946	1.250***	1.163***	1.498***	1.194***
IT: [35-44]	1.264***		1.458***		.716***		.873**	
Time dummies - Reference: 2004 (2009)[a]								
2005 (2010)	.949	1.062	.918	.904***	.952	.931	.939	.962
2006 (2011)	.670***	1.063	1.204***	.875***	1.014	1.014	.983	.881**
2007 (2012)	.886**	.994	1.349***	.869***	.912**	.944	1.426***	.852***
2008	1.207***	.982		.790***	.996	.978		.956
constant	.014***	.029***	.015***	.049***	.066***	.066***	.057***	.067***

Notes: * Significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

(a) We have four skill levels of job for the UK: 1 High; 2 Upper Middle; 3 Low; 4 Low. For Italy we have two categories, blue-collar and white collar.

(b): For Italy, educational dummy indicators refer to the highest and successfully completed educational attainment of a person. The educational classification used to build these indicators is the ISCED 97. We have three categories: primary education (none, elementary or lower secondary educational level), secondary education (upper secondary attainment level), and tertiary education (post secondary or tertiary educational level).
(c) For the UK we have six levels: 1 "degree or equivalent", 2 "Other higher education below degree", 3 "AS, A-Level or equivalent, 4 "GSCE or equivalent", 5 "Below GCSE", 6 "No qualifications".

Table 3: *Outflows from Inactivity by Gender and Education, Italy and UK, 2004–2013*

	NE				NU			
	Pre Recession		Recession		Pre Recession		Recessi	
	IT	UK	IT	UK	IT	UK	IT	U
gender and education interactions - Reference: female with a degree								
IT: male_primary education;	.618***	.482***	.571***	.377***	.866	1.672***	1.105	1.
UK: male_below GCSE,								
male_noqualifications		.311***		.231***		1.146**		.8
IT: male_secondary	.798***	.564***	.882	.523***	1.129	1.615***	1.341***	1.
education; UK: male_GCSE,		.617***		.573***		1.282***		1.
male_AS A level,								
male_other higher education								
below degree		.849**		.681**		1.746***		1.
IT and UK male_tertiary	1.562***	1.210***	1.383***	1.198**	1.241	1.675***	1.597***	1.
education (degree)								
IT: female_primary	.219***	.317***	.223***	.333***	.473***	1.215	.487***	1.
education; UK:		.241***		.183***		.687***		.5
female_belowGCSE,								
female_noqualifications								
IT: female_secondary	.465***	.469**	.455***	.464***	.740***	1.067	.722***	1.
education; UK:		.661***		.658***		.934		.9
female_GCSE, female_AS A								
level, female_other higher								
education below degree		.761***		.695***		.987		.9

age - Reference: 40(45)-54 for UK (IT)								
[15,24]	.958	3.935***	.784***	3.370***	1.391***	2.259***	.874**	1.
IT: [25,34]; UK: [25,39]	2.292***	1.429***	2.003***	1.254***	3.352***	1.442***	2.391***	1.
IT: [35-44]	1.813***		1.732***		2.339***		1.796***	
Time dummies - Reference: 2004 (2009)								
2005 (2010)	1.213***	.938*	1.009	.872***	1.079	.974**	.930	1.
2006 (2011)	1.079**	1.021	.967	.890**	.745***	.959	1.350***	1.
2007 (2012)	1.231***	.956	.567***	.801***	1.064	.937	.952	.9
2008	.994	.913		.791***	.962	1.085**		1,
constant	.184***	.091***	.195***	.087***	.067***	.029***	.087***	.0

Notes: * Significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

2.2 Discussion

Our findings confirm that women and young are disadvantaged in Italy.[9] Young people and female component of the labor force are indeed typically defined as disadvantaged labour market categories in Italy.[10] This contrasts with the finding for the UK: here the young people have higher probabilities of leaving both the states of unemployment and inactivity.

Why people in the age range 15-24 are "not disadvantaged" in the UK compared to Italy? More in general, how does the UK compare with Europe and therefore with Italy? The labour market structure/characteristics and the institutional developments in the UK might have generated more favourable labour market perspectives for young people compared to Italy (and European Countries).

With regard to the characteristics of the labour market in the UK, the official

[9] Disadvantaged Workers are defined by the European Commission Regulation (EC) No. 2204/2012 of 12 December 2002 on the application of Articles 87 and 88 of the EC Treaty to State aid for employment [article 2] as "any person who belongs to a category which has difficulty entering the labour market without assistance". This definition includes: young people, women living in depressed areas, disabled people, migrants and ethnic minorities, long-term unemployed, low-skilled workers, unemployed people over 50, single parents, the formerly convicted, substance abusers.

[10] Italy is characterized by a labor market in which both tightness and flexibility coexists (Baussola and Mussida, 2011, OECD, 2009), and women are still participating at a disadvantage in the labour force. This tendency has lessened over the last decade and the participation rate of women has increased. Nonetheless the gender gap in labour force participation remains wide (Addabbo et al., 2012).

statistics/data help confirming different and more encouraging perspectives for young people compared to Italy. Young people in the UK are increasingly involved in full-time education. The share of people in 15–24 years in full-time education went from 37.3% in 2004 to 42.1% in 2013 (ONS data).[11] After leaving education most young people immediately become unemployed regardless of qualification. The unemployment pool therefore increases. However, as people age and have had more time to look for work after leaving education the proportion unemployed falls. At age 24, the unemployment proportion is lowest for people with degrees or equivalent.

Most young people not in full-time education were employed at the end of 2013. Data from the ONS show that around 69% of the young people not in full-time education were employed at the end of 2013, whilst 15% were unemployed and the remaining 16% inactive. The relatively low percentage (especially whether compared to Italy) of young people not in education and work (inactive) suggest that the phenomenon of "not in employment, education or training" (NEET) is less relevant/important in the UK with respect to Italy. The NEET rate for population aged 15-24 was 14% compared to 21% in Italy in 2012 (latest data available).[12]

The phenomenon of youth unemployment is less relevant in the UK compared with Europe and especially with Italy. The youth unemployment rate in the UK was 21% compared to the European average of 23.5% and to the Italian rate of 40%.

As for the institutional developments, UK and Italy represent different institutional frameworks with different labour institutions and regulations. UK has an institutional context typical of the so called Anglo-Saxon model characterised by more flexible labour market legislations and therefore less employment protection legislation. Italy has a typically southern European labour market characterised by the continental model which involves tight legislative controls and quite restrictive institutions. The labour market is partitioned into segments characterised by significantly different levels of employment protection, and therefore different labour costs.

The advantage of young people in the UK might therefore be partly due to the more flexible

[11] The ONS data are available online at http://www.ons.gov.uk/ons/search/index.html?newquery=young+people.

[12] NEET are young people not in employment, education or training. The age range of the young people included in the definition varies across countries. In the UK the NEET include young people aged 15 to 24, whilst in Italy the range goes from 15 to 29 years of age. Although there is a difference in the age range considered for the definition of the NEET, the phenomenon is less important/relevant in the UK compared to Italy.

legislation compared to Italy. In addition, the fact that in the UK the government labour market policies principally aimed at those who have left full-time education and are not in work limited the explosion of very dramatic phenomena, like the NEET.

The situation of young people therefore varies across countries. From the discussion in this paragraph we can get some insights on the reasons behind these gaps/differences among countries. The UK has a high involvement of students in the labour market, an average level of unemployment (compared to Italy and, in general, to Europe), and a long-standing tradition of students doing part-time or summer jobs. This surely explains the higher opportunities of young people in the UK to leave both the state of inactivity and unemployment compared to Italy. In Italy, indeed, few students are employed or unemployed. The overlap between the labour market and education is very small and many young people complete their studies before looking for their first job. This implies longer periods of both inactivity (when students) and unemployment (when looking for a job) for young people in Italy compared to the UK.

Finally, to enhance the labour market perspectives of young people it is necessary to introduce policies aimed at increasing their labour force participation. In this respect, Germany might act as best practice. The youth labour market in Germany is characterized by high levels of employment and almost no unemployment among those in education. The reason of this favourable conditions for young people in the labour market is primarily due to the presence of established apprenticeships systems or vocational training in secondary education. These systems help to develop competencies and skills not learned on an educational course and therefore help the young people to leave more rapidly and with success the state inactivity and also to reduce the risk of unemployment.

2.3 Hazard rate comparison

The previous analysis has emphasized the determinants of the unemployment gender gap and the different impact of such variables in the Italian and British labor markets. We can use the results of the previous section to compare the prediction – in term of transition probabilities – implied by each estimated equation with the transition probabilities that may be derive from the aggregate labor market flows.

Figure 3 shows how the aggregate labor market flows may be represented, whereas Tables A1 and A2 in Appendix 1 shows the implied transition probabilities. These probabilities may be derived by dividing the flows from each state by the corresponding initial stock. As pointed out by Basawa and Rao (1980) this measure corresponds to the Maximum Likelihood estimation of the corresponding hazard rate.

Figure 3: *Labour Market Transition Matrix*

	State at time t		
State at time t-1	**Employed**	**Unemployed**	**Inactive**
Employed	***ee***	***eu***	***ei***
Unemployed	***ue***	***uu***	***ui***
Inactive	***ie***	***iu***	***ii***

This representation is the familiar first order discrete Markovian model which implies that transition probabilities are independent on the time spent in each state. This is equivalent to say that, for example, the probability of leaving unemployment is not affected by the time one individual is being unemployed. This assumption may be a limitation, particularly when long term unemployment increases and microeconomic data show the significance of the duration dependence effect. However, the Markovian representation may be thought of as a reasonable approximation of the average labor market flows over a relatively long time span.[13]

In addition, one should consider the fact that multiple transitions may occur within the average time span considered (year). For this reason, we have used the methodology proposed by Shimer (2012) which has enabled us to produce transition probabilities consistent with multiple transitions.

The results of both the Markovian transitions and those implied by applying this later methodology are shown in Tables A1 and A2 in the Appendix, together with the fitted values of the implied probabilities estimated with the multinomial logit models (Section 3.1).

Results show values which are relatively similar and, more important, they show a consistent

[13] We have also tested for the hypothesis that observations are from a first-order Markov chain, concluding that such an hypothesis cannot be rejected.

dynamic pattern. In addition the steady state unemployment rate derived from the Markovian representation and the multiple transition approach are very close and therefore, this fact suggests that the methodology we have applied may enable us to decompose the unemployment differential by gender according to the contribution provided by each single transition probability.

In the following section we present and discuss the results of such a decomposition, which has also been discussed and presented in Baussola and Mussida (2014). We simply refer to the equation showing the male-female unemployment rate decomposition, which allows calculating the female and male steady-state unemployment rates (u_f and u_m, respectively) and then to decompose[14] their differentials (Δu) as follows:

$$\Delta u \cong \sum_{k=1}^{6} \frac{1}{2}\left[\frac{du}{d\lambda.m(k)} + \frac{du}{d\lambda.f(k)}\right]\Delta\lambda(k)$$

where $\lambda(k)$ is the individual ($k-th$) transition probability and the terms in brackets represent the marginal impact of each probability on the steady state unemployment rate;[15] $\Delta\lambda(k)$ is the difference between female and male $k-th$ transition probability.

3. Unemployment differential decomposition in Italy and UK

This section sketches the methodology used for the breakdown of unemployment gender differentials in Italy and in the UK. We adopt a simple three-state labour market representation, i.e. employment, unemployment, and inactivity. Such a representation enables us to describe the labour market by means of a Transition Probability Matrix which shows both permanence in each labour market condition and the probability of moving from one state to another in a given period of time. We analise three labour market stocks, namely employment (E), unemployment (U), and inactivity (I). Transition probabilities are computed as the ratio between each flow and the corresponding stock

[14] The steady-state unemployment rate decomposition is used by, among others, Barnichon and Figura (2010).

[15] The impact is computed as a partial derivative of the steady-state unemployment rate with respect to each transition probability $\frac{du}{dp(k)}$, evaluated at the intermediate point between the values of male and female. The value obtained from eq. (8) informs on the impact of each gender difference in the transition probabilities on the unemployment rate differential.

at initial time, assuming a discrete first order Markov chain representation.[16] We compute quarterly transition probabilities, which are then averaged over the year. The Italian and the English LFS, indeed, offer transition probabilities at the same time frequency. We also apply, as explained above, the technique proposed by Shimer (2012)[17] to correct the transition probabilities obtained with the Markovian approach for possible multiple transition bias. The figures are shown in the Appendix Tables A1-A2.[18] In general, the transition probabilities computed with the two methods show the same pattern.[19] We therefore decided to use the uncorrected (Markovian) transition probabilities for our analyses.

In general terms, labour market transition probabilities enable us to measure the relative size of each labour market state and therefore to measure both the unemployment level and its rate. By looking at the transition probability matrix by gender we can determine both the absolute difference between the unemployment rates and the relationship between such transition probabilities, and differences in the unemployment rate by gender.

This decomposition of the unemployment rate differential may be derived by assuming the steady-state condition, i.e., by assuming that inflows and outflows from all labour market states counterbalance.[20] Under this assumption we can express the steady-state unemployment rate in terms of transition probabilities. This definition of the steady-state unemployment rate allows us to express variation in the unemployment rate in terms of variations in the transition probabilities. In other words, the methodology described enable us to evaluate the marginal impact of each transition probability on the steady state unemployment rate.

---

[16] For details on the methodology, see Baussola and Mussida (2014).

[17] Shimer (2012) developed a technique to correct for multiple transitions bias the labour market transitions obtained by surveys carried out at different time frequency. For instance, quarterly transitions are not directly comparable to annual transitions, since bias would result from the presence of multiple transitions within the year. The technique is used by, among others, Gomes (2012) to compare the quarterly transitions of the UK LFS with the monthly transitions of the US LFS. He corrected the quarterly UK transitions for the bias resulting from the presence of multiple transitions within the quarter.

[18] We decided to show the figures for the initial and final year of the period analysed for the sake of brevity. Nonetheless, estimates for the overall period are available upon reguest.

[19] We also used the corrected (Shimer) transition probabilities to compute the differentials in transition probabilities and in the steady state unemployment rates. Since the corrected transitions gave the same results as the uncorrected, we decided to show only the computation with the uncorrected transitions.

[20] In terms of the aforementioned Markov chain representation, this implies the determination of the equilibrium condition (ergodic condition) within such a dynamic system (Basawa and Rao, 1980).

3.1 Results

The analysis of the unemployment gender gap is relevant as Italy and the UK are characterized by different institutional frameworks characterized by diversified labor institutions and regulations. Italy, indeed, represents the typical Southern European context in which the labour market is partitioned into segments characterized by significantly different levels of employment protection, and, therefore, different labor costs. On the other hand, the UK represents the typical anglo-saxon labor model characterized by a lower employment protection legislation.

It is worth noting that, despite these different intrinsic characteristics, both labor markets show on the whole high labor mobility which, however, affects the labor force in a diversified way. In particular, the Italian labor market still present a significant unemployment gender gap which underlines how the disadvantage of the female component of the labor force, although reduced with respect to the '80s, is a structural characteristic of the Italian labor market. The aim of our analyses is therefore to show similarities and discrepancies among the two countries.

It should be noted, however, that our results contrast with those analyses based on the reconstruction of ins and outs of unemployment by using variation in labor market stocks. In particular, Elsby et al. (2013) apply the methodology developed by Shimer (2012) to estimate inflow and outflow hazard rates from and to unemployment, using publicly available data from the OECD economies.

This methodology enables them to classify countries in terms of the relevance of inflows and outflows contributions to the unemployment variation. The Anglo-Saxon countries, and therefore the UK, are characterized by high inflow and outflow hazards, whereas such rates are significantly lower in Continental countries, like Italy. In addition, the outflow rate constitutes the major part of the variation in unemployment in the Anglo-Saxon countries, while in most European economies the split between inflow and outflow contributions to unemployment variation is almost equal.

It should be underlined that this result is obtained ignoring the flows from and to inactivity. Thus, the framework derived under such a methodology which neglects inflows and outflows from inactivity typically describes, for instance, a tight labor market in Continental Europe, particularly in Italy.

Other studies, including Smith (2011) and Gomes (2012) for the UK, Petrongolo and Pissarides (2008) and Silva and Vázquez-Grenno (2013) for France, Spain and other European Countries, have focused on the contribution of unemployment inflows and outflows changes in unemployment stock. They adopt both a two-state and a three-state decomposition and they get similar results.[21] When they use a three-state decomposition, they find that slightly more than 20% of the fluctuations in unemployment can be attributed to flows between inactivity and the labour force. From the remaining, the job finding rate is more important than the job separation rate (around 60% and 40% of the fluctuations in unemployment, respectively). When they adopt a two-state decomposition, the job separation rate is more important and accounts for around 50% of the volatility of unemployment. Their approach is in line with that proposed by Shimer (2012) and includes the extension proposed by Fujita and Ramey (2009).

On the contrary, our investigation is based on the aforementioned Transition Probability Matrix approach, which implies a simple Markovian discrete process.

Although this representation is not immune from possible drawbacks and bias on the calculated hazard rates,[22] it implies nonetheless less stringent assumptions with respect to the Elsby et al. (2012) approach,[23] since it considers also the flows from to and from inactivity.

It is worth recalling, however, that in a more recent study Elsby et al. (2013) do consider the flows to and from inactivity in order to reassess cyclical fluctuations within the US labour market. Their suggestion is that the contribution of flows between unemployment and inactivity to unemployment variation is significant even when error measurements are taken into consideration, and they account for around 1/3 of the overall cyclical unemployment movements.

The adopted transition probabilities are calculated by dividing the quarterly outflows from each

[21] The values reported by Gomes (2012) are in line with the ones reported by Petrongolo and Pissarides (2008). They found that in the UK, by using data from the LFS, job separation rate has the same contribution to unemployment fluctuations as the job finding rate.

[22] The Markovian representation does imply, for example, that transition probabilities are conditional on the present state of the system and do not depend on the time spent in each state. We have tested for the hypothesis that the calculated TPM is a representation of a first order discrete Markov chain following Basawa and Rao (1980). More in detail, we test for the null hypothesis of independence of transition probabilities. The test rejects the null hypothesis of independence, thus suggesting that the first order Markov chain representation is appropriate.

[23] Elsby et al. (2012b) present average unemployment in- and outflow rates across countries which, for example, show unrealistic values for the Italian labor market. Indeed, their estimate for Italy implies an outflow rate of 4.1% and an inflow rate of 0.4%, which - of course - corresponds to an extremely tight labor market. However, according to our TPM representation outflow and inflow rates are far more realistic, as, for example, the average outflow rate over the period 2006-2012 is about 30.4% and the corresponding inflow rate is about 2%.

status by the corresponding initial stock, according to the Markovian approach.[24]

It can easily be shown that the unemployment gender gap is still a relevant issue within the Italian labour market as the unemployment rate for women is on average 2 to 3.3 percentage points higher than that for men (Table A1 in the Appendix). This characteristic is shared with other OECD countries, in particular the Mediterranean economies, as pointed out in Azmat et al. (2006) and by OECD data.[25]

Instead the gender gap is not relevant in northern European and Anglo-Saxon countries; in particular, the UK shows unemployment rate for men which are higher than those for women, especially over the recent recession (the unemployment rate for men is on average 0.6 to 1.8 percentage points higher than that for women, Table A2 in the Appendix). The US economy exhibits similar trends of the gender unemployment rates, with a disadvantage for the male unemployment especially since the economic downturn (Sahin et al., 2010).

As regards labour market transition probabilities, we refer to employment outflows towards unemployment (*eu*) and inactivity (*ei*), permanence in unemployment (*uu*) and outflows from unemployment (*ue* and *ui*). Finally we consider outflows from inactivity and the probability of successful labour force entry (*pie*)[26]. The corrected and uncorrected transition probabilities for Italy and the UK (total and by gender) for the initial and final year of the period analysed[27] are reported in the Appendix Tables A.1 andA. 2, respectively.

Table 4: *Gender Unemployment rate Differentials by Year, Italy*

[24] We recall that the calculated transition probabilities obtained by dividing each flow by its corresponding stock, is equivalent to the Maximum Likelihood estimation of the corresponding hazard rate (Basawa and Rao (1980)).

[25] OECD data confirm such evidence. These are available at http://www.oecd- ilibrary.org/employment/unemployment-rate_20752342-table1.

[26] The probability of successful labour force enry is defined as: ie/(ie+iu).

[27] We decided to report only the figures for 2006-2007 and 2012-2013 for the sake of brevity. The results for the overall period are available upon request.

	eu	en	Ue	un	Ne	nu	Diff. Tot(1)	Diff. Tot(2)
				2006-2007				
diff between transition prob. (F-M)	-.0016	.0391	-.0893	.1483	-.0164	-.0052		
du/dp(i)M	1.5828	.5168	-.0849	-.0572	-.4258	.8783		
du/dp(i)F	1.524	.6266	-.1204	-.0770	-1.224	2.175		
1/2[du/dpiM +du/dpiF]	1.553	.5717	-.1026	-.0671	-.8249	1.527		
Unemployment rate difference	-.2469	2.233	.9174	-.9954	1.3503	-.7961	2.463	2.229
	eu	en	ue	un	Ne	nu	Diff. Tot(1)	Diff. Tot(2)
				2012-2013				
diff between transition prob. (F-M)	.0009	.0171	.0042	.1169	-.0176	-.0159		
du/dp(i)M	2.021	1.098	-.3055	-.1394	-.3488	.6820		
du/dp(i)F	1.759	1.001	-.2861	-.1233	-1.458	1.104		
1/2[du/dpiM +du/dpiF]	1.890	1.050	-.2958	-.1314	-.9036	.8931		
Unemployment rate difference	.1846	1.799	-.1240	-1.535	1.589	-1.425	.4881	.8520

Table 4 displays the transition probabilities – for the initial and final year of the period - used to compute the steady-state unemployment rate for Italy. The last two columns report the total difference between gender in the steady-state unemployment rate explained by such probabilities, and the gender gap in the steady-state unemployment rate,[28] respectively. By looking at the last rows of each yearly estimate it is easy to see the contribution of each probability to the gender unemployment gap. It is worth underlining the fact that the most relevant flow in determining this gap is *ei*, i.e. flows from employment to inactivity. This strengthens previous evidence provided by Baussola (1985) and Marston (1976), and contrasts with other evidence not based on aggregate labour market flows which explains unemployment dynamics only in terms of inflows and outflows from unemployment to employment.

[28] For technical details on the computation of the steady-state unemployment rate, see Baussola and Mussida (2014).

The gender gap trend in the steady state unemployment rate, as reported in the last column of Table 4, is very close to that computed by gender differentials, thus emphasizing the fact that during the recent crisis the gender gap has decreased. This is due to the fact that the economic downturn hit male and female employment asymmetrically. This is particularly due to the sectoral characteristics of this crisis, which has hit economic sectors typically characterized by a high male employment rate. These changes have resulted in an increase in male unemployment and therefore in a reduction in the gender gap in unemployment rates.

The condition of women has not improved, but given that male employment has fallen, there has been a reduction in the unemployment gap with respect to men.

The reduction in the gender unemployment rate gap is also confirmed by official statistical data (Figures 1 and 2 and Table A1 in the Appendix), and drops from 3.3 percentage points in 2006 to 2 percentage points in 2012. This reduction depends on the increase in the male unemployment rate which climbed from 5.5% in 2006 to 9.9% in 2012. The female unemployment rate also increased, but with lower rates compared to men (from 8.8% in 2006 to 11.9% in 2012).[29] The lower increase of the unemployment for women confirms that a significant discouragement effect does exist and crucially affects the female component of the labour force.

Figure 2 displays the official and the steady state unemployment rates by gender in the UK for the period 2006-2012. The gender gap in the unemployment rates in the UK show a disadvantage for the male component of the labour force and this is in contrast to Italy. The structural characteristics of the labour market are different and in the UK and the female component of the labour force do show higher employment opportunities compared to men.

Table 5 show the gender unemployment rate differential for the UK. As for Italy, the most relevant flow in determining the unemployment gender gap is *ei*, i.e. flows from employment to inactivity. Another similarity to Italy, is the evidence of higher difficulties of women to leave the state of inactivity. In both countries, indeed, women do show lower hazard of leaving inactivity both successfully (ne) and for unemployment (nu).

The gender gap trend in the steady state unemployment rate, as reported in the last column of Table

[29] These figures are available at http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database.

2, is close to that computed by gender differentials especially before the recession.

The gender gap in unemployment, as confirmed by the official statistics, slightly increased from 0.8 percentage points in 2006 to 1.01 percentage points in 2012.[30] The recession therefore did not exert a relevant impact on the gender unemployment gap in the UK. This is due to the fact that, in contrast to Italy, the economic downturn hit male and female employment almost symmetrically. The impacts of the recession have resulted in an (almost) equal increase in male and female unemployment – i.e. both male and female unemployment rates increased of around 2.5 percentage points.[31]

To sum up, the comparison between Tables 4 and 5 suggest discrepancies and similarities between Italy and UK.

In terms of discrepancies, women in the labour force (employed and unemployed) are more favoured in the UK, especially in terms of employment opportunities once unemployed. In Italy, instead, men were typically favoured at least since the beginning of the recession. This is due to the fact that the economic downturn hit the Italian male and female employment asymmetrically. This is particularly due to the sectoral characteristics of this crisis, which has hit economic sectors typically characterized by a high male employment rate.

The similarities, instead, refer to the inactive women. Women out of the labour force, indeed, are disadvantaged compared to men in both countries and for both the outflows, i.e successful exits (ne) and transitions from inactivity to unemployment (nu).

[30] These figures are available at http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Unemployment+Rates.

[31] The male unemployment rate increased from 5.8% in 2006 to 8.5% in 2012, whilst the rate for women increased from 5% in 2006 to 7.5% in 2012. As a result, the increase (due to the recession) of both genders unemployment rates was around 2.5 percentage points. These figures are available at http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database.

Table 5: *Gender Unemployment rate Differentials by Year, UK*

	eu	en	ue	un	ne	nu	Diff. Tot(1)	Diff. Tot(2)
				2006-2007				
diff between transition prob. (F-M)	-.0021	.0116	.0011	.1028	-.0132	-.0201		
du/dp(i)M	2.574	1.203	-.1479	-.0788	-.2243	.2558		
du/dp(i)F	2.169	.8896	-.1150	-.0670	-.3945	.5515		
1/2[du/dpiM +du/dpiF]	2.371	1.046	-.1315	-.0729	-.3094	.4036		
Unemployment rate difference	-.4785	1.212	-.0141	-.7499	.4085	-.8119	-.4338	-.4004
	eu	en	ue	un	ne	nu	Diff. Tot(1)	Diff. Tot(2)
				2012-2013				
diff between transition prob. (F-M)	-.0048	.0098	-.0196	.0722	-.0060	-.0234		
du/dp(i)M	2.967	1.733	-.2432	-.1012	-.3102	.2210		
du/dp(i)F	2.785	1.443	-.2067	-.0996	-.5569	.5178		
1/2[du/dpiM +du/dpiF]	2.876	1.588	-.2249	-.1004	-.4336	.3694		
Unemployment rate difference	-1.385	1.563	.4404	-.7243	.2620	-.8649	.1560	-.6691

(1)Sum of the unemployment rate differences.
(2)Difference between the steady-state unemployment rates.

Figure 1: *Official and Steady State Unemployment Rates, Italy and UK, 2006-2012*

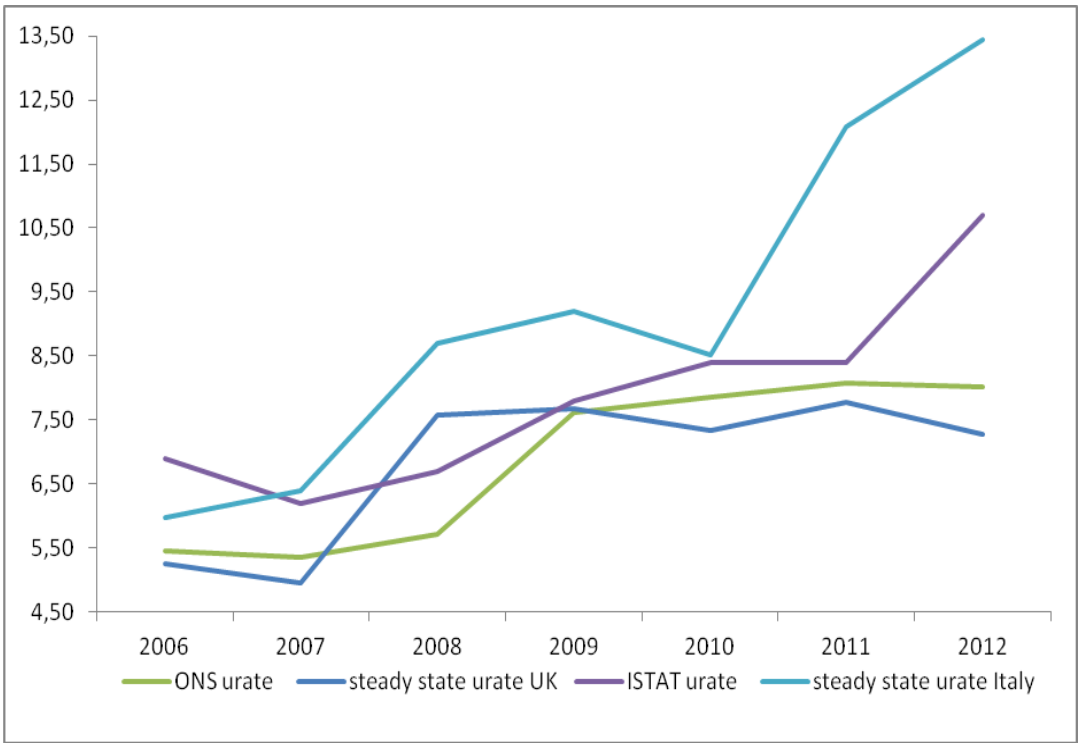
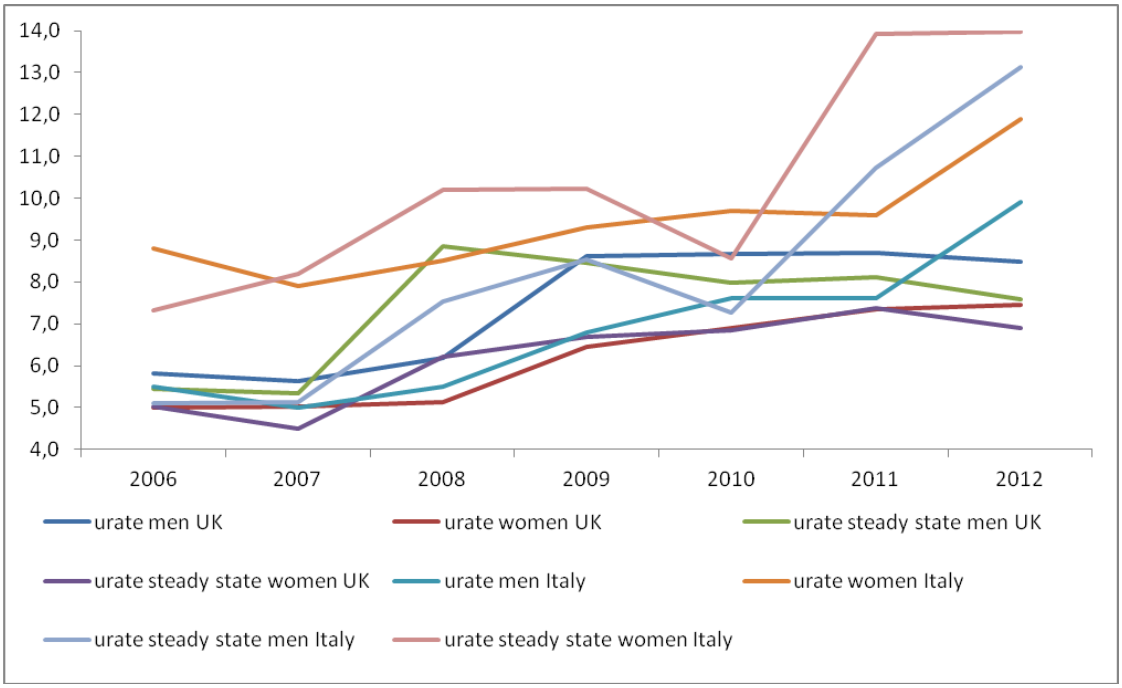


Figure 2:*Official and Steady State Unemployment Rates by Gender, Italy and UK, 2006-2012*



4. Conclusions

Analysis of the unemployment gender gap is particularly relevant for the Italian and UK labour markets. Even though Italy and the UK are characterised by different institutional frameworks - having different labour institutions and regulations - both labour markets present high labour mobility overall, which however affects the two nations' labour forces differently. We have proposed a breakdown of unemployment enabling us to pinpoint the most relevant labour flows determining these gaps in a comparative perspective, i.e. by analyzing the features within the Italian and UK economies.

This analysis suggests that the inclusion of the state of inactivity gives a more precise decomposition of the gender gap, as the flows from inactivity to employment represent a non-negligible component of the overall inflows to employment. In this respect women in both countries do show a significantly lower probability of successful entry into the labour force with respect to their male counterparts.

The microeconometric estimates confirm these analyses and also suggest discrepancies and similarities between the two countries. The recent crisis has given rise to one discrepancy: we find that the impact of the recession on employment in Italy has been asymmetric, the crisis hitting sectors typically characterized by male employment harder. In addition, education has lost its role in enhancing employment opportunities in Italy. For the UK instead, the crisis has had a symmetric impact on gender employment, and the role of education has not altered. Another discrepancy between Italy and the UK involves the probability of young people in the age range 15-24 exiting unemployment. In Italy young people have lower employment opportunities and lower outflows to inactivity compared to older workers. The opposite is true in the UK.

The two countries are instead similar in terms of the impact of unemployment duration. For the outflows from unemployment there is evidence of negative duration dependence. In addition, women in both countries experience greater difficulty in leaving the state of inactivity with respect to men.

Our findings therefore suggest that women and the young are disadvantaged in Italy. Young people and the female component of the labour force are indeed typically defined as disadvantaged labour market categories in Italy. This contrasts with the findings for the UK: here women experience lower unemployment with respect to their male counterparts and young people have higher probabilities of leaving the state of inactivity, both successfully and for unemployment.

References

Addabbo, T., R. Garcìa–Fernàndez, C. Llorca–Rodrìguez, and A. Maccagnan, "Poverty and Unemployment: The Cases of Italy and Spain," in G. Parodi and D. Sciulli, eds., *Social Exclusion. Short and Long Term Causes and Consequences*, Berlin: Springer Physica–Verlag, 2012, chapter 10, pp. 199–220.

Azmat, G., M. Guell, and A. Manning, "Gender Gaps in Unemployment Rates in OECD Countries," *Journal of Labor Economics*, 2006, *24* (1), 1–37.

Barnichon, R. and A. Figura, *What Drives Movements in the Unemployment Rate? A Decomposition of the Beveridge Curve*, Division of Research and Statistics and Monetary Affairs Federal Reserve Board, Washington, DC, Finance and Economics Discussion Series 2010-48.

Basawa, I.V. and B.L.S. Prakasa Rao, *Statistical Inference for stochastic processes*, London: Academic Press, 1980.

Baussola, M., "Flussi occupazionali e differenziali nei tassi di disoccupazione maschili e femminili," *Rivista Internazionale di Scienze Sociali*, 1985, *3*, 122-145.

__ , "Labour Mobility in Italy: An Empirical Investigation," *Labour*, 1988, *3*, 113–142.

__ and C. Mussida, "The natural rate of unemployment and the unemployment gender gap," 2011. Department of Economic and Social Sciences, Catholic University of the Sacred Heart, Piacenza, Working Paper No. 80.

__ and C. Mussida, "Transitions in the Labour Market: Discouragement Effect and Individual Characteristics," *Labour*, 2014, forthcoming.

Cameron, A.C. and P.K. Trivedi, *Microeconometrics: Methods and Applications*, Cambridge University Press, 2005.

Clark K. B – Summers L.H. (1979) , "Labor Market Dynamics and Unemployment: A Reconsideration Brookings Papers on Economic Activity", 1979, 1, 13-72.

Discenza, A.R. and C. Lucarelli, "Dati longitudinali a 12 mesi di distanza - Aspetti metodologici," 2009. ISTAT, Nota metodologica allegata alla diffusione dei file MFR, Dicembre 2009, Roma.

Elsby, M., B. Hobijn, and A. Sahin, "On the Importance of the Participation Margin for Labor Market Fluctuations," 2012. Federal Reserve Bank of New York, September 2012.

__ , , and , Unemployment Dynamics in the OECD, *Review of Economics and Statistics*, MIT Press, 2013, 95(2), 530-548.

Fujita, S. and G. Ramey, "The Ciclicality Of Separation And Job Finding Rates," *International Economic Review*, 2009, *50*, 415–430.

Gomes, P., "Labour market flows: Facts from the United Kingdom," *Labour Economics*, 2012, *19*, 165–175.

Gourieroux, C., *Econométrie des variables qualitative, second edition*, Paris: Economica, 1989.

ISTAT (2006), "La rilevazione sulle forze di lavoro: contenuti, metodologie, organizzazione," 2006. ISTAT - Metodi e Norme n. 32 - 2006 - Roma.

__ "Forze di Lavoro - Media 2008," 2009. Annuari, Roma.

__ , *Rapporto Annuale. La situazione del Paese nel 2009* 2010.

Junankar, P.R. and S. Price, "An Anatomy of Unemployment Flows in Great Britain," 1984. Institute for Employment Research, University of Warwick, September,, Discussion Paper No. 26.

Marston, S.T., "Employment Instability and High Unemployment Rates," *Brookings Papers on Economic Activity*, 1976, (1).

Mortensen, D., "Unemployment Insurance and Job Search Decisions," *Industrial and Labor Relations Review*, 1977, *30* (4), 505–517.

Narendranathan, W. and S. Nickell, "Modelling the Process of Job Search," *Journal of Econometrics*, 1985, *28* (1).

Nickell, S., "The Determinants of Equilibrium Unemployment in Britain," *Economic Journal*, 1982, *40* (1).

OECD, *Employment Outlook*, Paris: OECD, 2009.

Petrongolo, B. and C. A. Pissarides, "The Ins and Outs of European Unemployment," *American Economic Review*, 2008, 98 (2), pp. 256-262.

Sahin, A. et al., "The Unemployment Gender Gap during the 2007 Recession," *Federal Reserve Bank of New York, current issues in Economics and Finance*, 2010, *16* (1). Available on line at http://www.newyorkfed.org/research/current_issues.

Shimer, R., "Reassessing the Ins and Outs of Unemployment," *Review of Economic Dynamics*, 2012, 15 (2), pp. 127-148.

Silva, J. I. and J. Vázquez-Grenno, "The ins and outs of unemployment in a two-tier labour market, Labour Economics, 2013, 24 (5), pp. 161-169.

Smith, J. C., "The ins and outs of UK unemployment", *The Economic Journal*, 2011, vol. 121, 402-444.

Appendix

A-1 The Italian LFS

The sampling design of the survey is composed of two stages, with a stratification of the unit at the first stage; the first stage units are municipalities, while the second stage comprises households.

Each household member is interviewed. The main difference between the two stages is that while for families a 2-2-2 rotation scheme is applied, the municipalities surveyed do not change over time.

More specifically, a household was interviewed for two consecutive surveys and, after being excluded from the sample for two quarters, was interviewed for another two consecutive quarters. This is defined as a (2-2-2) rotation scheme.[32]

This rotation system makes it possible to maintain half the sample unchanged in two consecutive quarters and in quarters one year apart. In other words, the scheme implies a 50% overlapping of the theoretical sample to a quarter of the distance, a 25% overlapping to three quarters, a 50% to four quarters, and a 25% to five quarters. Our analyses are based on yearly longitudinal data for the period 2004-2012.

These data are employed both to compute the labour market transitions which determine the steady-state unemployment rate and the related gender differentials, and to estimate the determinants of the labour market transitions which mostly affect such indicators and differentials. This latter investigation is carried out by using the variables described in Appendix Table A-1. The choice of variables was driven both by specific econometric tests and preliminary checks, and by the relevance of the indicators which are widely emphasized in the literature and in the aforementioned descriptive statistics**.**

[32] For in-depth details on the sampling design, see Discenza and Lucarelli (2009).

Table A1: *Transition Probabilities and Unemployment rates by Gender and Year, Italy.*

	eu	en	ue	un	uu	ne	nu	pne	u*	urate**
					2006-2007					
					Markov					
M	.0157	.0453	.3497	.3257	.3245	.0513	.0249	.6735	5.09	5.50
F	.0141	.0844	.2603	.4741	.2656	.0349	.0197	.6399	7.32	8.80
T	.0151	.0606	.3022	.4045	.2933	.0409	.0216	.6549	5.97	6.99
					Shimer					
M	.0264	.0435	.5952	.5597		.0460	.0432	.5158	5.09	5.50
F	.0256	.0841	.4883	.8733		.0319	.0368	.4643	7.32	8.80
T	.0264	.0587	.5393	.7200		.0368	.0388	.4866	5.97	6.99
					2012-2013					
					Markov					
M	.0313	.0463	.2381	.2967	.4653	.0563	.0670	.4563	13.14	9.90
F	.0322	.0635	.2422	.4135	.3442	.0387	.0511	.4309	13.98	11.90
T	.0316	.0534	.2396	.3516	.4087	.0454	.0571	.4431	13.44	10.70
					Shimer					
M	.0449	.0436	.3483	.4567		.0483	.1039	.3175	13.14	9.90
F	.0536	.0564	.4126	.7152		.0295	.0891	.2485	13.98	11.90
T	.0484	.0486	.3746	.5672		.0370	.0928	.2849	13.44	10.70
					Fitted***					
Pre	.0198	.0430	.3053	.3710	.3237	.0948	.0655	.5914		
Rec	.0278	.0391	.2608	.3645.	.3747	.0818	.0826	.4976		

Notes: (*) u is the steady-state unemployment rate, (**) urate is the actual unemployment rate.
(***) Averages of the periods pre-recession and recession.

Table A2: *Transition Probabilities and Unemployment rates by Gender and Year, UK.*

	eu	en	ue	un	uu	ne	nu	pne	u*	urate**
					2006-2007					
					Markov					
M	.0132	.0145	.2682	.1486	.5832	.0659	.0578	.5327	5.44	5.82
F	.0112	.0261	.2693	.2514	.4793	.0527	.0377	.5830	5.04	5.01
T	.0122	.0199	.2689	.1937	.5373	.0573	.0446	.5620	5.25	5.45
					Shimer					
M	.0168	.0143	.3473	.2049		.0595	.0803	.4258	5.44	5.82
F	.0154	.0257	.3806	.3718		.0479	.0562	.4599	5.04	5.01
T	.0161	.0195	.3615	.2737		.0519	.0635	.4499	5.25	5.45
					2012-2013					
					Markov					
M	.0165	.0121	.2369	.1224	.6406	.0515	.0723	.4160	7.58	8.47
F	.0117	.0219	.2174	.1946	.5879	.0455	.0489	.4818	6.91	7.46
T	.0142	.0167	.2285	.1535	0.6179	.0477	.0575	.4532	7.28	8.01
					Shimer					
M	.0203	.0117	.2957	.1618		.0433	.0962	.3104	7.58	8.47
F	.0146	.0219	.2807	.2630		.0407	.0666	.3791	6.91	7.46
T	.0177	.0164	.2984	.2038		.0415	.0769	.3506	7.28	8.01
					Fitted***					
pre	.0076	.0106	.2763	.1904	.5333	.0644	.0427	.6010		
rec	.0096	.0091	.2196	.1540	.6264	.0526	.0538	.4944		

Notes: (*) u is the steady-state unemployment rate, (**) urate is the actual unemployment rate.
(***) Averages of the periods pre-recession and recession.