

Determinants of the gender unemployment gap in Italy and the United Kingdom: A comparative investigation

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***Abstract.** The authors analyse the gender unemployment gap in Italy and the United Kingdom by investigating the determinants of labour market flows, on the basis of multinomial logit model estimates, and identifying the contribution of a single transition from each state – employment, unemployment, inactivity – to the gap. Using this methodology, labour markets in Italy and the United Kingdom are compared, based on both countries' labour force survey data for the period 2004–13. Decomposition of the gender unemployment gap, using a transition probability matrix approach, shows that while women are disadvantaged in Italy, the reverse is true in the United Kingdom.*

The sharp rise in unemployment rates during the economic downturn that followed the 2008 recession calls for researchers and policy-makers to address various questions such as the role played by structural factors versus cyclical factors in bringing about an upturn. In this context, an issue that was largely neglected in the 1990s is of renewed relevance: the gender unemployment gap.

It is only recently that this gap – the difference in male and female unemployment rates – has again started to receive the attention it deserves. It was last considered a relevant economic and policy issue in the 1970s and early 1980s; the seminal papers by Marston (1976) and Clark and Summers (1979) are clear illustrations of that debate, which also included the role of ethnic factors as determinants of structural differences in the United States' unemployment rate. Subsequently, the literature focused more on other aspects of gender differentials, such as labour force participation and the gender wage gap.

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Since the first decade of the new millennium, however, the gender unemployment gap has been put back on the agenda. Recent literature includes international comparisons; a study by Azmat, Guell and Manning (2006), for example, looks at gender unemployment gaps in Organisation for Economic Co-operation and Development (OECD) countries, using microdata collected from the European Community Household Panel (ECHP) survey and the Current Population Survey (CPS). The authors find that in countries where the gap is relatively large, it is women who are disadvantaged. This is particularly true for Mediterranean countries, which typically also have very high youth unemployment rates. In addition, the authors find that in countries with higher female labour force participation rates and subsequent higher levels of female labour market attachment – for example, Anglo-Saxon countries – the gender unemployment gap is smaller. However, they also show that in many European countries, particularly in southern Europe, the gap has increased in recent decades, despite higher female participation rates, thus suggesting that institutional factors can play a crucial role in perpetuating this gap.

More recent studies have shown the gender unemployment gap narrowing as a result of the economic recession. Şahin, Song and Hobijn (2010), for example, show how the gap narrowed in the United States as a result of higher male unemployment following the effect of the downturn on industries such as construction and finance, where men were more heavily represented than women.

Against this background, we analyse the gender unemployment gap, comparing patterns in Italy and the United Kingdom. The two countries have different institutional frameworks, with different labour institutions and regulations. Italy has a typically southern European labour market, composed of segments characterized by significantly different levels of employment protection, and therefore different labour costs, while the United Kingdom has a typically Anglo-Saxon labour market characterized by less employment protection legislation (Theodossiou and Zangelidis, 2009). Despite these intrinsic differences, both labour markets have high labour mobility overall, but this mobility affects the labour force in each country in different ways. In particular, a significant gender unemployment gap persists in the Italian labour market, reflecting the disadvantage suffered by female labour force participants. While this imbalance has improved since the 1980s, female disadvantage remains a structural characteristic of the Italian labour market.

We extend the analysis by Baussola (1985 and 1988) and Baussola and Mussida (2011 and 2014) to provide more detailed and updated evidence of the determinants of labour market flows – or labour market transitions – and how they affect the gender unemployment gap. We provide econometric estimates of the flows, which enable us to highlight their determinants and how they affect the gender unemployment gap. In addition, we decompose the gender unemployment gap, and measure the marginal contribution of each labour market transition – i.e. each transition from the state of employment, unemployment or inactivity – to this gap.

Our analysis is based on data from labour force surveys conducted in Italy and the United Kingdom for the period 2004–13. These data sets are preferred to the 1990s-era ECHP survey or the more recent European Union Statistics on Income and Living Conditions (EU-SILC) survey, both of which show labour market flows only retrospectively, and may therefore cause significant measurement errors arising from possible misclassification errors, particularly with respect to unemployment status. Typically, the persistence rate in unemployment – i.e. the percentage of individuals who remain unemployed in a given interval, such as a quarter or a year – is significantly higher when calculated using ECHP or EU-SILC data than when using labour force survey data. Labour force surveys, while not immune from possible misclassification, are specifically tailored to measure both labour market stocks and flows, whereas the ECHP and EU-SILC surveys are primarily tailored to investigate the economic conditions of households, meaning that an individual's labour force status can be derived only indirectly.

The remainder of the article is organized into four sections. The first describes the main characteristics of the labour market in Italy and the United Kingdom. The second section describes the data set and methodology and presents the empirical results concerning the determinants of labour market flows. The third section describes the decomposition of the gender unemployment gap, and the results for Italy and the United Kingdom, while the fourth and last section presents our conclusions.

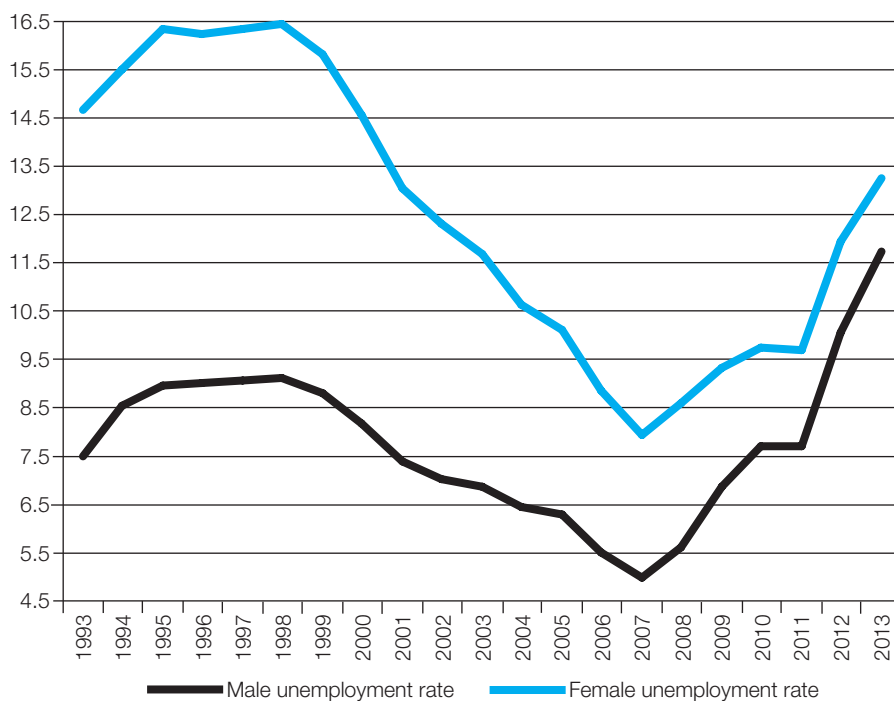
Labour market characteristics

Before looking in more detail at the determinants of the gender unemployment gap, it is useful to recall the main characteristics of the labour markets of Italy and the United Kingdom.

Figures 1 and 2 show the pattern of male and female unemployment for 1993–2013 in Italy and the United Kingdom, respectively. It can be seen that in Italy the female unemployment rate is higher than the male rate, whereas the opposite is true in the United Kingdom. In addition, looking at the relative values of the unemployment rate, there is a significant difference between the two labour markets; the situation for men in Italy, overall, is better than the situation for men in the United Kingdom. During the recession, however, Italy's unemployment rate increased sharply, both for men and for women. The female unemployment rate in the United Kingdom is far below that of Italy; the average rate over the entire period is approximately 5.7 per cent in the United Kingdom and approximately 12.5 per cent in Italy.

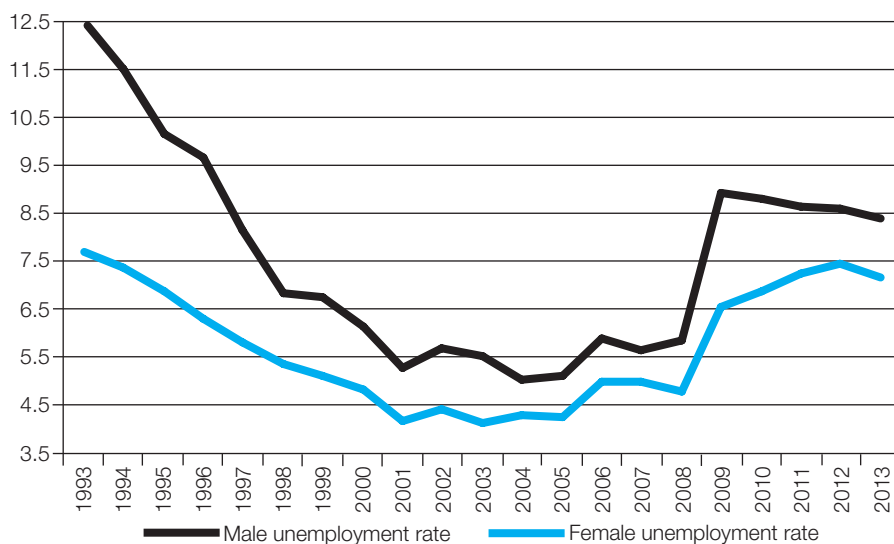
While in both countries the gender gap narrows over time, this is particularly true for Italy. The gender gap in the United Kingdom decreased from approximately 4.8 percentage points at the beginning of the 1990s to approximately 1.2 percentage points in 2013. The gap narrowed in recent years in Italy, with the crucial factor being the poor macroeconomic conditions resulting from the 2008 recession, which dramatically worsened employment

Figure 1. Male/female unemployment rates, Italy, 1993–2013 (percentages)



Source: Authors' own calculations, based on ISTAT labour force data.

Figure 2. Male/female unemployment rates, United Kingdom, 1993–2013 (percentages)



Source: Authors' own calculations, based on ONS labour force data.

opportunities for men. The gender unemployment gap in Italy decreased from approximately 7.2 percentage points at the beginning of the 1990s to approximately 1.5 percentage points in 2013.

This different female unemployment rate pattern in the two labour markets is closely bound up with the clear difference in female labour force participation rates observed over the same period. In the United Kingdom, the female participation rate rose from 66.9 per cent at the beginning of the 1990s to approximately 71.7 per cent in 2013, whereas the corresponding rate in Italy rose from 41.9 per cent to 54.4 per cent. Female labour force participation in Italy is therefore one of the main policy areas that should be addressed, in order to improve the overall economic conditions at both national and regional levels.

Data set and methodology

The empirical analysis of the determinants of the gender unemployment gap – i.e. the determinants of the main labour market flows contributing to the gap – and analysis of the gap's decomposition are based on longitudinal data for Italy and the United Kingdom provided by the countries' national institutes of statistics.

For Italy, yearly longitudinal data (2004–13) are derived from the quarterly labour force survey conducted by the Italian National Institute of Statistics (ISTAT). Each quarter, the labour force survey collects information on almost 77,000 households in 1,246 Italian municipalities, representing 200,000 individuals. Technical details on the survey are provided in the appendix.¹

For the United Kingdom, labour market data are derived from the quarterly labour force survey conducted by the Office for National Statistics (ONS). For the survey, households are interviewed for five consecutive quarters; every quarter, approximately 20 per cent of the sample is replaced. The sample is composed of approximately 41,000 responding households per quarter.² With the use of proper population weighting procedures, the labour force survey is intended to represent the entire population of the United Kingdom. Therefore, quarterly data averaged over the year are used.

However, it is necessary to account for the fact that multiple labour market transitions may occur during the average time span considered, i.e. one year. For this reason, the methodology proposed by Shimer (2012)³ is used to

¹ The most recent changes in the definitions and design of the Italian survey occurred in 2004. The changes, which were primarily dictated by the requirement to adapt the survey to new European Union (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 labour force survey, see ISTAT (2006 and 2009).

² Additional details on the labour force survey are available from the Office for National Statistics at: <http://www.ons.gov.uk/ons/search/index.html?newquery=LFS+user+guides>.

³ The technique is used by, among others, Gomes (2012) to compare the quarterly transitions of the British labour force survey with the monthly transitions of the United States labour force survey. He corrects the quarterly transitions for the bias resulting from the presence of multiple transitions during the quarter.

correct for multiple transitions that may bias labour market flows obtained by surveys conducted over different time frequencies; the quarterly transitions in the British labour force survey data, for example, are not directly comparable to the annual transitions in the Italian labour force survey data. This technique allows us to produce transition probabilities that are consistent with multiple transitions. Since the corrected transition probabilities show the same patterns as the uncorrected transition probabilities, we show only the calculation with the uncorrected transitions.⁴

Determinants of the gender unemployment gap

The determinants of labour market flows in Italy and the United Kingdom are investigated using multinomial logit model estimates. We specify a separate model for each labour market state, assuming a simple three-state representation (the states of employment, unemployment and inactivity) and assuming independence of the flows – or transitions – from each of the three labour market states. The dependent variables *utr*, *etr* and *itr* thus refer to the flows from the states of unemployment, employment and inactivity, respectively.

Let $h = 1$ to N be the indices for the h -th individual in the sample; let us define the conditional probability of an individual's transition from state a to state b at time t as

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

where $X_{t,h}$ is the random variable describing the state of individual h at time t , which can take the values $0, 1, 2$, where 0 is unemployment, 1 is employment and 2 is inactivity; $z_{t,h}$ is a vector that includes individual-level covariates. The values of the 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 $\beta_0 = 0$, thus assuming permanence in the initial state as the baseline category. Model parameters are estimated using the maximum likelihood method.⁵

Typically, labour market transitions have been analysed using search theory as a benchmark for all microeconomic investigations; Narendranathan and Nickell (1985), for example, develop a model in which unemployment outflows are the result of workers' search activities.

Using a macroeconomic framework, Junankar and Price (1984) and Nickell (1982) estimate the aggregate unemployment inflow and outflow probabil-

⁴ The calculation with the corrected transition probabilities is available from the authors on request.

⁵ 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).

ities for the British labour market, whereas Baussola (1988) applies a similar approach to the Italian labour market.

The characteristics of our data set enable us to establish an econometric framework that combines labour supply and demand factors, together with other possible structural determinants, to explain flows to and from employment, unemployment and inactivity. However, such proxies of labour supply and demand factors are partially limited, since we do not have estimates for unemployment benefit or vacancies, for example.

Explanatory variables may be grouped into supply determinants, which reflect individual characteristics such as sex and level of education, duration of unemployment, age and area of residence;⁶ and employment-related determinants such as public- or private- sector employment, skill level of the job, and whether the contract is full time or part time. We also consider yearly dummy variables in order to capture time-specific effects related to cyclical variations.

The purpose of the econometric exercise is twofold. First, we investigate the determinants of labour market flows in Italy and the United Kingdom. Second, we examine differences and similarities between specific flow determinants – particularly the interactions between sex and education, and between age and area of residence – by comparing the results obtained across countries.

The estimates cover the period 2004–13. The time period is divided into two – pre-recession and recession – to examine the possible effects of the recent crisis on labour market dynamics. For both Italy and the United Kingdom, the pre-recession period is 2004–08/09, and the recession period is 2009–13.

Table 1 shows the estimated relative risk ratios (RRRs)⁷ for the determinants of outflows from unemployment, by period and country. In Italy, the effect on male and female unemployment was asymmetrical. This situation is confirmed by our estimates: the relative risk of successful exit from unemployment (λ_{ue}) is higher for men with tertiary (degree-level) education, by a factor of 1.277, than for women with tertiary education before the recession, whereas the RRR is not significant over the recession period. In addition, whereas before the crisis, women with secondary education moved less frequently from unemployment to employment (.810) than women with tertiary education, the RRR is not significant during the recession.

These results suggest two findings for Italy. First, the recession mainly affected industries that typically employed men. Second, the role of education in enhancing employment opportunities was less strong during the economic downturn. For the United Kingdom, with regard to the interacting effect of sex and education, we find no difference between the pre-recession and

⁶ We introduce specific interactions, between sex and educational attainment and between age and area of residence, in order to obtain the joint effect of these characteristics on labour market flows.

⁷ The estimated coefficients β of the multinomial logit model are transformed to relative risk ratios that are the exponentiated betas, exp^{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).

Table 1. Determinants of outflows from unemployment (relative risk ratios), Italy and United Kingdom, 2004–13

	λ_{ue}				λ_{ui}			
	Pre-recession ^a		Recession		Pre-recession ^a		Recession	
	IT	UK	IT	UK	IT	UK	IT	UK
Sex and education^b interactions – Reference: female with tertiary education (degree)								
IT: male_primary education;	.761*	.417***	.740**	.451***	.633***	.485***	.725**	.457***
UK: male_below GCSE, male_noqualifications		.302***		.338***		.622***		.617***
IT: male_secondary education;	.792**	.445***	.860	.551***	.728***	.637***	.732**	.615***
UK: male_GCSE, male_AS A level, male_other higher education below degree		.615***		.577***		1.009		.727***
		.634***		.907		.591**		.680***
IT and UK male_tertiary education (degree)	1.277*	.819**	1.176	.830***	.883	.523***	.707**	.465***
IT: female_primary education;	.535***	.413***	.602***	.375***	1.277**	1.299*	1.379**	1.186*
UK: female_belowGCSE, female_noqualifications		.303***		.288***		1.356***		1.194*
IT: female_secondary education;	.810**	.496***	.806	.517***	1.153	1.266*	1.232	1.249**
UK: female_GCSE, female_AS A level, female_other higher education below degree		.627***		.662***		1.448***		1.197**
		.680***		.719***		1.111		1.021
Duration of unemployment – Reference: less than 3 months								
3 to 6 months	.712***	.547***	.756***	.649***	.932	.652***	.930	.697***
6 to 12 months	.608***	.396***	.645***	.461***	.902	.585***	1.109	.566***
1 to 2 years	.469***	.315***	.464***	.343***	.778***	.605***	.899	.541***
over 2 years	.338***	.141***	.346***	.233***	.851***	.586***	.927	.494***
Age and area of residence^c interactions – Reference: 40–54 in Northern Italy (London and South East)								
age1524_north (London-South East)	1.186	1.046	.853	1.172*	.653***	1.465***	.762**	1.461***
age1524_centre (Rest of UK)	1.014	1.230**	.810	1.166*	.732**	1.290**	.797	1.164*
age1524_south	.523***		.520***		.820**		.965	
age2539_north (London-South East)	1.189*	1.009	1.211*	1.127	.633***	1.166	.819*	1.018
age2539_centre (Rest of UK)	.800*	1.142**	.881	1.035	.554***	1.181*	.731**	.912
age2539_south	.589***		.694***		.742***		1.053	
age4054_centre (Rest of UK)	1.076	1.038	1.020	1.083	1.019	1.037	1.004	.922
age4054_south	.716***		.721***		1.055		1.294***	

Table 1. Determinants of outflows from unemployment (relative risk ratios), Italy and United Kingdom, 2004–13 (*concl.*)

	λ_{ue}				λ_{ui}			
	Pre-recession ^a		Recession		Pre-recession ^a		Recession	
	IT	UK	IT	UK	IT	UK	IT	UK
Time dummies- Reference: 2004 (2009)								
2005 (2010)	1.232***	.880***	1.149*	.925*	1.023	.890*	1.215***	.928
2006 (2011)	1.271***	.880***	.983	1.007	1.284***	.925	.961	.918
2007 (2012)	1.298***	.944	.733***	.901*	1.022	.934	1.135	.721***
2008	1.058	.868		1.009	1.094	.975		.847**
constant	2.298***	1.832***	1.806***	1.078**	1.163***	.477***	1.060***	.490***
observations	12,972	21,621	8,812	31,513	12,972	21,621	8,812	31,513

*, **, and *** indicate significance at the 10, 5 and 1 per cent levels, respectively.

Notes: ^a We divided the overall period into two time periods: pre-recession and recession, respectively. For both Italy and the United Kingdom, the pre-recession period is from 2004 to 2008–09, whereas the recession period is from 2009 to 2013. ^b For Italy, educational dummy indicators refer to the highest and successfully completed educational attainment. The educational classification used to build these indicators is the ISCED 1997. We have three categories: primary education (none, elementary or lower secondary education), secondary education (upper secondary education), and tertiary education (post-secondary or tertiary education). For the United Kingdom we have six levels: 1 "Degree or equivalent", 2 "Other higher education below degree", 3 "AS, A-Level or equivalent", 4 "GCSE or equivalent", 5 "Below GCSE", 6 "No qualifications". ^c For Italy, we have three geographical areas, i.e. North, Centre and South. For the United Kingdom we have two geographical areas, i.e. London-South East and the rest of the country.

recession periods, thereby confirming our observation of the symmetrical effect of the recession on male and female unemployment.

Another difference between Italy and the United Kingdom concerns the probability of leaving unemployment (for either employment or inactivity) for young people aged 15–24. Young unemployed people living in southern Italy have fewer employment opportunities and show lower outflows to inactivity (λ_{ue} and λ_{ui} , respectively) compared to individuals in northern Italy aged 40–54 (the reference category). The opposite is true in the United Kingdom. The probabilities of leaving unemployment – whether successfully (i.e. for employment) or for inactivity – are higher for young people than for those aged 40–54, both before and during the crisis.

However, the two countries are similar in terms of the effect of duration of unemployment. For outflows from unemployment, there is evidence of negative duration dependence, especially for the United Kingdom.

Table 2 shows the estimated RRRs for the determinants of outflows from employment. The findings suggest that there are two differences between Italy and the United Kingdom regarding the determinants of sex and education. First, as explained earlier, the nature of the gender unemployment gap is different in the two countries: in Italy, women have higher unemployment rates than men, while in the United Kingdom men have a higher probability than women of leaving employment. Second, the (interacting) effect of sex and education on employment outflows is stronger in the United Kingdom, especially for male labour force participants.

Table 2. Determinants of outflows from employment (relative risk ratios), Italy and United Kingdom, 2004–13

	λ_{eu}				λ_{ei}			
	Pre-recession		Recession		Pre-recession		Recession	
	IT	UK	IT	UK	IT	UK	IT	UK
Sex and education interactions – Reference: female with tertiary education (degree)								
IT: male_primary education;	1.081	1.457***	1.326**	1.545***	.863**	.567***	.790**	.559***
UK: male_below GCSE, male_noqualifications		1.953***		2.074***		.915		.877
IT: male_secondary education;	.875	1.412***	1.051	1.676***	.683***	.609***	.621	.626***
UK: male_GCSE, male_AS A level, male_other higher education below degree		1.068		1.405***		.941		.936
		1.023		1.491***		.566***		.494***
IT and UK male_tertiary education (degree)	.715**	1.096	.668***	1.170**	.623***	.648***	.465***	.643***
IT: female_primary education;	1.119	1.041	1.255*	1.117	1.680***	1.005	1.462***	.891
UK: female_belowGCSE, female_noqualifications		1.139		1.175		.990		1.134
IT: female_secondary education;	1.109	.908	1.034	1.034	1.147**	.708***	1.116	.759***
UK: female_GCSE, female_AS A level, female_other higher education below degree		.781**		.920		1.036		1.045
		.725**		1.014		.728***		.878**
Skill level of job – Reference: high skill^a								
upper middle level		1.203**		1.227***		1.101**		1.045
lower middle level		1.432***		1.335***		1.231***		1.150**
low level	2.400***	1.928***	2.223***	1.551***	1.701***	1.688***	1.844***	1.342***
Public employment	.531***	.548***	.555***	.585***	.593***	.780***	.699***	.798***
Full-time employment	.503***	.828***	.582***	.764***	.412***	.308***	.405***	.304***
Age and area of residence interactions – Reference: 40–54, Northern Italy (London and South East)								
age1524_north (London-South East)	3.117***	1.604***	3.247***	1.140*	1.644***	2.337***	3.677***	2.111***
age1524_centre (Rest of UK)	5.231***	1.671***	4.105***	1.262***	2.137***	2047***	4.817***	1.966***
age1524_south	11.318***	6.835***		4.330***		8.119***		
age2539_north (London-South East)	1.641***	.946	1.491***	.938	.633***	1.337***	1.379***	1.253***
age2539_centre (Rest of UK)	2.497***	.886*	1.663***	.874*	.828***	1.004	1.781***	.946
age2539_south	4.054***		3.090***		1.726***		3.455***	
age4054_centre (Rest of UK)	1.253**	.938	1.063	.922	.690***	.917	1.426***	.809***
age4054_south	1.970***		1.571***		1.306***		2.760***	

Table 2. Determinants of outflows from employment (relative risk ratios), Italy and United Kingdom, 2004–13 (*concl.*)

	λ_{eu}				λ_{ei}			
	Pre-recession		Recession		Pre-recession		Recession	
	IT	UK	IT	UK	IT	UK	IT	UK
Time dummies - Reference: 2004 (2009) ^a								
2005 (2010)	.826***	1.062	.924	.905**	.808***	.931*	.946	.962
2006 (2011)	.577***	1.063	1.210***	.876**	.850***	.963	.993	.955
2007 (2012)	.765***	.982	1.374***	.869**	.767***	.963	1.488***	.879**
2008	1.074		1.113***	.790***	1.113***	.918	1.113***	.850**
constant	.013***	.030***	.015***	.052***	.075***	.068***	.034***	.076***
observations	148,489	427,534	81,152	398,995	148,489	427,534	81,152	398,995

*, **, and *** indicate significance at the 10, 5 and 1 per cent levels, respectively.

Note: ^a We use four job skill levels for the United Kingdom: 1 High; 2 Upper Middle; 3 Low; 4 Low. For Italy we use two categories: blue collar and white collar.

There are also two similarities. First, young people in both countries (and in all geographical areas) have a higher probability of losing their job – i.e. moving from employment to either unemployment or inactivity – compared with individuals aged 40–54 (living in northern Italy or in London/south-east England). This is especially true in Italy. Finally, job characteristics, such as skill level, industry and type of contract, have the same effect on employment outflows in both countries. In general, we find smaller employment outflows for public-sector white-collar workers with full-time contracts. This finding is as we expected.

Table 3 shows the estimated RRRs for the determinants of outflows from inactivity. In both Italy and the United Kingdom it is more difficult for women than men to leave the state of inactivity, especially women with a low level of education. The role of education in increasing outflows from inactivity appears to be higher in the United Kingdom than in Italy, both before and during the recession.

It can be seen that in Italy, from the start of the recession, young people are disadvantaged in terms of inactivity outflows (just as they are in terms of unemployment outflows), whereas before the recession, they had substantial opportunities to move from inactivity to employment or unemployment. People aged 15–24, especially those living in southern Italy, have a lower probability of leaving the state of inactivity than adults (aged 25 and over). Our findings therefore suggest that women and young people are disadvantaged in Italy, within the meaning of the European Commission's definition of that term.⁸ Labour market opportunities for young people and women, who are

⁸ Disadvantaged workers are defined by European Commission Regulation (EC) No. 2204/2002 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”, and include young people and women living in depressed areas.

Table 3. Determinants of outflows from inactivity (relative risk ratios), Italy and United Kingdom, 2004–13

	λ_{ie}				λ_{iu}			
	Pre-recession		Recession		Pre-recession		Recession	
	IT	UK	IT	UK	IT	UK	IT	UK
Sex and education interactions – Reference: female with tertiary education (degree)								
IT: male_primary education;	.639***	.490***	.606***	.390***	.781***	1.690***	1.077	1.466***
UK: male_below GCSE, male_noqualifications		.313***		.238***		1.167		.894
IT: male_secondary education;	.849***	.573***	.947	.534***	1.023	1.642***	1.310***	1.496***
UK: male_GCSE, male_AS A level, male_other higher education below degree		.625***		.595***		1.303***		1.126
		.852		.727**		1.774***		1.959***
IT and UK male_tertiary education (degree)	1.397***	1.221*	1.427***	1.224**	1.151	1.686***	1.615***	1.635***
IT: female_primary education;	.237***	.318***	.228***	.323***	.450***	1.219*	.476***	1.025
UK: female_belowGCSE, female_noqualifications		.244***		.192***		.698***		.585***
IT: female_secondary education;	.505***	.473***	.480***	.472***	.701***	1.084	.705***	1.183**
UK: female_GCSE, female_AS A level, female_other higher education below degree		.667***		.697***		.946		.950
		.764***		.720***		.997		.982
Age and area of residence interactions – Reference: 40–54 in North (London and South East)								
age1524_north (London-South East)	2.046***	2.905***	.754***	2.693***	2.195***	1.989***	.635***	1.631***
age1524_centre (Rest of UK)	1.716***	3.631***	.511***	2.713***	2.362***	1.917***	.701***	1.650***
age1524_south	1.335***		.447***		3.926***		.925	
age2539_north (London-South East)	5.394***	1.340***	2.116***	1.161**	5.357***	1.294**	1.804***	1.172**
age2539_centre (Rest of UK)	4.653***	1.201**	1.629***	.947	6.845***	1.216**	2.293***	1.178**
age2539_south	3.002***		1.155**		7.134***		2.023***	
age4054_centre (Rest of UK)	2.220***	.822**	.990	.721***	3.142***	.809**	1.202	.858**
age4054_south	2.067***		.774***		3.405***		1.069	
Time dummies – Reference: 2004 (2009)								
2005 (2010)	1.367***	.937**	1.009	.872***	1.117***	.974	.929	1.082*
2006 (2011)	1.213***	.912***	.958	.890**	.776***	1.129**	1.351***	1.080
2007 (2012)	1.390***	.928*	.547***	.799***	1.098**	1.050	.956	.925
2008	.957	.950		.789***	.874***	1.085**		1.020
constant	.094***	.104***	.255***	.105***	.033***	.033***	.099***	.046***
observations	89,277	101,574	44,131	99,318	89,277	101,574	44,131	99,318

*, **, and *** indicate significance at the 10, 5 and 1 per cent levels, respectively.

also defined as disadvantaged labour market categories in Italy, have been worsened by the economic downturn.⁹

This contrasts with the findings for the United Kingdom, where young people have a higher probability of moving from inactivity to employment or to unemployment (λ_{ie} and λ_{iu} , respectively) before and during the recession.

Findings

Our findings confirm that both female and young labour force participants are disadvantaged in Italy. This situation contrasts with the findings for the United Kingdom, where young labour force participants have a higher probability of leaving both unemployment and inactivity.

Overall, young people in the United Kingdom have a higher labour force participation rate than the corresponding population in Italy; the unemployment rate for people aged under 24 is approximately 43 per cent in Italy compared with 21 per cent in the United Kingdom. However, in terms of unemployment proportion – i.e. the ratio of unemployment to population – the corresponding values for the two countries are 11 per cent and 12 per cent, respectively.

This finding may be related to the fact that an increasing number of young people in the United Kingdom are in full-time education, which may subsequently help them to find a job. The share of people aged 15–24 in full-time education increased from 37.3 per cent in 2004 to 42.1 per cent in 2013.

Most young people not in full-time education at the end of 2013 in the United Kingdom were employed; ONS data show that approximately 69 per cent of individuals in this category were employed at the end of 2013, whereas 15 per cent were unemployed and the remaining 16 per cent were inactive.¹⁰ The relatively low percentage of young people not in education or employment, especially compared to Italy, suggests that there are fewer “NEETs” (Not in Education, Employment, or Training) in the United Kingdom than in Italy. In 2013, the NEET rate for the population aged 16–24 was 15 per cent in the United Kingdom compared to 24 per cent in Italy.¹¹

There is therefore less youth unemployment in the United Kingdom than in the rest of Europe, especially Italy; the youth unemployment rate in the United Kingdom was 20.8 per cent in 2013 compared to the European average of 23.5 per cent and the Italian rate of 40 per cent.

⁹ Italy’s labour market is not as tight as is generally believed (Baussola and Mussida, 2011), and women continue to participate at a disadvantage. This tendency has decreased over the last decade. Despite the fact that women’s labour force participation rate has increased, at least in northern and central Italy, there is still a large gender gap in labour force participation (Addabbo et al., 2012).

¹⁰ For details, see: <http://www.ons.gov.uk/ons/rel/lmac/young-people-in-the-labour-market/2014/rpt-young-people.html#tab-How-does-the-UK-compare-with-Europe->.

¹¹ The age range for defining NEETs varies across countries. In the United Kingdom, the definition of NEETs covers young people aged 16–24, whereas in Italy it covers young people aged 15–29. Even taking this age difference into account, the proportion of NEETs among young people is greater in Italy than in the United Kingdom.

The United Kingdom and Italy have different institutional frameworks with different labour institutions and regulations. The United Kingdom's institutional context is typical of the "Anglo-Saxon" model, characterized by more flexible labour market legislation and less employment protection legislation. Policy interventions have helped reduce unemployment, including long-term unemployment, especially for young persons aged 18–24. The New Deal for Young People, for example, was introduced in 1998 as a key component of the Government's welfare-to-work strategy, with the aim of helping young unemployed people find sustainable employment and increasing their long-term employability. The options available under the scheme include full-time education or training, work experience through job placement and subsidized employment (Barham et al., 2009).

Italy's institutional framework is typical of southern Europe; it is representative of the "continental" model, characterized by a more segmented labour market, with significantly different levels of employment protection, and therefore different labour costs, to the United Kingdom. The use of temporary contracts has increased significantly, particularly for young people. During the economic downturn following the 2008 recession, firms adjusted their employment levels by first making reductions to temporary employment.

In addition, labour market policies have been introduced in the United Kingdom to increase employment opportunities for those who have left full-time education but are not employed. One example is a programme of traineeships to help those aged 16–24 to develop the skills and experience they need to secure apprenticeships and other sustainable jobs. These policies have most likely limited the explosion of the NEET phenomenon, and explain the greater opportunities enjoyed by young people in the United Kingdom compared to Italy and their higher probability of leaving both inactivity and unemployment. In Italy, young people in full-time education rarely have temporary work or internship experience that could enhance their employability; this leads to longer periods of both inactivity and unemployment for young Italians compared to the United Kingdom.

Successful policies aimed at increasing young people's labour force participation could usefully draw on the experience of Germany, which represents best practice within the European Union. Germany's youth labour market is characterized by high levels of employment, with virtually no unemployment among school-leavers. These favourable conditions for young people are primarily due to the existence of established apprenticeship systems and vocational training as part of secondary education, which help young people develop competencies and skills that are not taught in the formal school curriculum; it is therefore easier for young people to leave the state of inactivity quickly and successfully.

Comparison of transition probabilities

The previous analysis investigated the determinants of the gender unemployment gap and the different effects of those variables on the Italian and British labour markets. We now calculate labour market transition probabilities,

based on aggregate labour market flows, correcting for possible multiple transition bias.

Tables 4 and 5 show the transition probabilities for Italy and the United Kingdom, based on aggregate labour market flows obtained from ISTAT and ONS data. These probabilities may be derived by dividing the flows from each labour market state by the corresponding initial stock. As noted by Basawa and Rao (1980), this measure corresponds to the maximum likelihood estimation of the corresponding “hazard rate”, i.e. the conditional probability of transition. The labour market is represented by a transition probability matrix for flows between the labour market states of employment, unemployment and inactivity.¹²

This representation is the familiar first-order discrete Markov model. Under this model, transition probabilities are independent of the time spent in each state; for example, the probability of leaving unemployment is not affected by the duration of unemployment. 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 Markov representation may be considered to be a reasonable approximation of average labour market flows over a relatively long time span.¹³

We are aware of the fact that, as suggested by Shimer (2012), multiple transitions may occur within the relevant time span considered by each labour force survey. The Italian and British labour force surveys study transitions at different time frequencies (yearly and quarterly, respectively). For this reason, and to obtain directly comparable transitions, we also calculate transition probabilities that are consistent with Shimer’s methodology.

The Markov and Shimer transition probabilities are shown in tables 4 and 5.¹⁴ The values obtained are fairly similar. Most importantly, they show a consistent dynamic pattern. In addition, the steady-state unemployment rates derived from the Markov representation and those derived from the multiple transition approach are the same, therefore suggesting that the methodology we applied may enable us to decompose the male/female unemployment rate differential, according to the contribution of each transition probability.

We use the equation for male/female unemployment rate decomposition, which enables us to calculate the female and male steady-state unemployment rates (u_f and u_m , respectively), and to decompose their differentials (Δu) as follows:¹⁵

¹² For details of the transition probability matrix, see Baussola and Mussida (2014).

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

¹⁴ For the sake of brevity, we decided to report the Markov and Shimer transition probabilities for 2006–07 and 2012–13 only, i.e. before and during the recession. The results for the entire 2004–13 period are, however, available from the authors on request.

¹⁵ The steady-state unemployment rate decomposition is used by, among others, Barnichon and Figura (2010) and Barnichon and Nekarda (2012).

Table 4. Transition probabilities and unemployment rates, Italy

	λ_{eu}	λ_{ei}	λ_{ue}	λ_{ui}	λ_{uu}	λ_{ie}	λ_{iu}	λ_{pie}	u*	u/rate**
2006-07										
Markov										
Male	.0157	.0453	.3497	.3257	.3245	.0513	.0249	.6735	5.09	5.50
Female	.0141	.0844	.2603	.4741	.2656	.0349	.0197	.6399	7.32	8.80
Total	.0151	.0606	.3022	.4045	.2933	.0409	.0216	.6549	5.97	6.99
Shimer										
Male	.0264	.0435	.5952	.5597		.0460	.0432	.5158	5.09	5.50
Female	.0256	.0841	.4883	.8733		.0319	.0368	.4643	7.32	8.80
Total	.0264	.0587	.5393	.7200		.0368	.0388	.4866	5.97	6.99
2012-13										
Markov										
Male	.0313	.0463	.2381	.2967	.4653	.0563	.0670	.4563	13.14	9.90
Female	.0322	.0635	.2422	.4135	.3442	.0387	.0511	.4309	13.98	11.90
Total	.0316	.0534	.2396	.3516	.4087	.0454	.0571	.4431	13.44	10.70
Shimer										
Male	.0449	.0436	.3483	.4567		.0483	.1039	.3175	13.14	9.90
Female	.0536	.0564	.4126	.7152		.0295	.0891	.2485	13.98	11.90
Total	.0484	.0486	.3746	.5672		.0370	.0928	.2849	13.44	10.70

* u is the steady-state unemployment rate. ** u/rate is the actual unemployment rate.

$$\Delta u \cong \sum_{k=1}^6 \frac{1}{2} \left[\frac{du}{d\lambda.m(k)} + \frac{du}{d\lambda.f(k)} \right] \Delta \lambda(k) \quad (3)$$

where $\lambda(k)$ is the individual transition probability ($k - th$) and the terms in brackets represent the marginal effect of each probability on the steady-state unemployment rate;¹⁶ $\Delta \lambda(k)$ is the difference between the female and male $k - th$ transition probability.

Decomposition of the gender unemployment gap

In general terms, labour market transition probabilities enable us to measure the relative size of each labour market state, and thus both the level and rate of unemployment. By looking at the transition probability matrix by sex, we can determine the absolute unemployment rate differential, the relationship between transition probabilities, and the differences by sex.

This decomposition of the gender unemployment gap may be derived by assuming the steady-state condition, i.e. by assuming that flows to and

¹⁶ The effect is calculated as a partial derivative of the steady-state unemployment rate with respect to each transition probability, evaluated at the intermediate point between the male and female values. The value obtained from equation (3) shows the effect of each gender difference on transition probabilities for the unemployment rate differential.

Table 5. Transition probabilities and unemployment rates, United Kingdom

	λ_{eu}	λ_{ei}	λ_{ue}	λ_{ui}	λ_{uu}	λ_{ie}	λ_{iu}	λ_{pie}	u*	u/rate**
2006–07										
Markov										
Male	.0132	.0145	.2682	.1486	.5832	.0659	.0578	.5327	5.44	5.82
Female	.0112	.0261	.2693	.2514	.4793	.0527	.0377	.5830	5.04	5.01
Total	.0122	.0199	.2689	.1937	.5373	.0573	.0446	.5620	5.25	5.45
Shimer										
Male	.0168	.0143	.3473	.2049		.0595	.0803	.4258	5.44	5.82
Female	.0154	.0257	.3806	.3718		.0479	.0562	.4599	5.04	5.01
Total	.0161	.0195	.3615	.2737		.0519	.0635	.4499	5.25	5.45
2012–13										
Markov										
Male	.0165	.0121	.2369	.1224	.6406	.0515	.0723	.4160	7.58	8.47
Female	.0117	.0219	.2174	.1946	.5879	.0455	.0489	.4818	6.91	7.46
Total	.0142	.0167	.2285	.1535	.6179	.0477	.0575	.4532	7.28	8.01
Shimer										
Male	.0203	.0117	.2957	.1618		.0433	.0962	.3104	7.58	8.47
Female	.0146	.0219	.2807	.2630		.0407	.0666	.3791	6.91	7.46
Total	.0177	.0164	.2984	.2038		.0415	.0769	.3506	7.28	8.01

* u is the steady-state unemployment rate. ** u/rate is the actual unemployment rate.

from all labour market states counterbalance. 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 transition probabilities. In other words, the methodology described enables us to evaluate the marginal effect of each transition probability on the steady-state unemployment rate.

Results

While both the Italian and British labour markets show overall high labour mobility, this affects the labour force in different ways. In particular, the Italian labour market continues to present a significant gender unemployment gap; this shows that the disadvantage suffered by female labour force participants, while less marked than that of the 1980s, is a structural characteristic of the Italian labour market. Our analysis aims to show the similarities and differences between the two countries.

It should be noted that our results contrast with analyses that reconstruct unemployment details by using variations in labour market stocks. In particular, Elsby, Hobijn and Şahin (2013) apply the methodology developed

by Shimer (2012) to estimate unemployment inflow and outflow hazard rates using publicly available data for OECD economies.

Using this methodology, they classify countries in terms of the contributions of unemployment inflows and outflows to unemployment variation within countries. They find that Anglo-Saxon countries are characterized by high unemployment inflow and outflow rates, whereas these rates are significantly lower in continental countries, including Italy. In addition, outflow rates account for most of the variation in unemployment in Anglo-Saxon countries, while in most European economies there is an almost equal split between the contributions of unemployment inflows and outflows to unemployment variation. It should be underlined that their results ignore flows to and from inactivity.

Other studies, including Smith (2011) and Gomes (2012) for the United Kingdom, Petrongolo and Pissarides (2008) and Silva and Vázquez-Grenno (2013) for France, Spain and other European countries, focus on how variations in unemployment inflows and outflows contribute to changes in unemployment stocks. Conducting both a two-state and a three-state decomposition, the authors obtain similar results.¹⁷ With a three-state decomposition, Gomes (2012) finds that slightly more than 20 per cent of the fluctuations in unemployment can be attributed to flows between inactivity and labour force participation. For the remaining fluctuations, the job-finding rate is more important than the job-separation rate (a 60–40 split, approximately). With a two-state decomposition, he finds that the job-separation rate is more important, accounting for approximately 50 per cent of the volatility in unemployment. His approach is in line with that proposed by Shimer (2012) and includes the extension proposed by Fujita and Ramey (2009).

Conversely, our investigation is based on the transition probability matrix approach, involving a simple Markov discrete process. Although this representation is not immune from possible drawbacks and bias in the calculated hazard rates, it nonetheless entails less stringent assumptions than Elsby, Hobijn and Şahin's (2013) approach,¹⁸ since it also considers the flows to and from inactivity.

¹⁷ The values reported by Gomes (2012) are in line with those reported by Petrongolo and Pissarides (2008) who, using labour force survey data, find that in the United Kingdom, the job-separation rate contribution to unemployment fluctuations is the same as that as the job-finding rate.

¹⁸ Elsby, Hobijn and Şahin (2013) present average unemployment inflow and outflow rates across countries that show unrealistic values for the Italian labour market. Indeed, their estimate for Italy shows an average unemployment outflow rate of 4.3 per cent and an inflow rate of 0.4 per cent, which – of course – corresponds to an extremely tight labour market. However, in our transition probability matrix representation, outflow and inflow rates are far more realistic because, for example, the average outflow rate over the period 2004–13 is approximately 28.9 per cent and the corresponding inflow rate is approximately 2.2 per cent. With respect to the United Kingdom, the same authors present average unemployment inflow and outflow rates of approximately 1 per cent and 13.9 per cent, respectively, i.e. unemployment flows that are halfway between the Anglo-Saxon and the continental European models. Again, our transition probability matrix representation shows more realistic inflow and outflow rates of approximately 1.4 per cent and 24.2 per cent, respectively, for the period 2004–13.

It is worth noting, however, that in a more recent study, Elsby, Hobijn and Şahin (2015) do consider flows to and from inactivity in reassessing cyclical fluctuations within the United States labour market. Their suggestion is that the contribution of unemployment–inactivity flows to unemployment variation is significant even when adjustment for error correction is taken into consideration: these flows account for approximately one-third of overall cyclical unemployment movements.

From our results, it can easily be seen that the gender unemployment gap remains a relevant issue in the Italian labour market, since the unemployment rate for women is, on average, 2 to 3.3 percentage points higher than that for men (table 4). This characteristic is shared with other OECD countries, in particular the Mediterranean economies, as noted in Azmat, Guell and Manning (2006).¹⁹

The gender unemployment gap is not a relevant issue in northern European and Anglo-Saxon countries, however. Indeed, the United Kingdom shows male unemployment rates that are, on average, 0.8 to 1 per cent higher than female rates, particularly during the recession (table 5). The situation is similar in the United States, where male unemployment rates were also higher than female rates, especially since the recession (Şahin, Song and Hobijn, 2010).

With regard to labour market transition probabilities, we consider outflows from employment to unemployment (*eu*), outflows from employment to inactivity (*ei*), permanence in unemployment (*uu*) and outflows from unemployment to employment or inactivity (*ue* and *ui*). Finally, we consider flows from inactivity (*ie* and *iu*) and the probability of successful labour force entry (*pie*).²⁰ The corrected and uncorrected transition probabilities for Italy and the United Kingdom (total and by sex) for a few years of the period analysed are reported in tables 4 and 5, respectively.

Table 6 shows the transition probabilities used to calculate Italy's steady-state unemployment rate.²¹ The last two columns report, respectively, the total difference between the male and female steady-state unemployment rates explained by these probabilities, and the gender gap in the steady-state unemployment rates calculated using the Markov and Shimer methodology. The values in the "contribution to steady-state unemployment gap" rows clearly show the contribution of each transition probability to the gender unemployment gap. It can be seen that the strongest contribution is made by the flow from employment to inactivity (*ei*). This finding strengthens previous evidence provided by Baussola (1985) and Marston (1976) and contrasts with other evidence, not based on aggregate labour market flows, that explains

¹⁹ This is confirmed by OECD data, available at: <http://stats.oecd.org/Index.aspx?DatasetCode%3DTABLE1>.

²⁰ The probability of successful labour force entry is defined as $ie/(ie+iu)$.

²¹ For the sake of brevity, we only report the results for 2006–07 and 2012–13, showing the decomposition before and during the recession. However, the full set of results is available from the authors on request.

Table 6. Steady-state gender unemployment gap based on labour market transition probabilities, Italy

	λ_{eu}	λ_{ei}	λ_{ue}	λ_{ui}	λ_{ie}	λ_{iu}	(1)	(2)
2006–07								
Diff between transition probs (F-M)	-.0016	.0391	-.0893	.1483	-.0164	-.0052		
$du/d\lambda(k)M$	1.5828	.5168	-.0849	-.0572	-.4258	.8783		
$du/d\lambda(k)F$	1.524	.6266	-.1204	-.0770	-1.224	2.175		
$1/2[du/d\lambda(k)M + du/d\lambda(k)F]$	1.553	.5717	-.1026	-.0671	-.8249	1.527		
Contribution to steady-state unemployment gap	-.2469	2.233	.9174	-.9954	1.3503	-.7961	2.463	2.229
2012–13								
Diff between transition probs (F-M)	.0009	.0171	.0042	.1169	-.0176	-.0159		
$du/d\lambda(k)M$	2.021	1.098	-.3055	-.1394	-.3488	.6820		
$du/d\lambda(k)F$	1.759	1.001	-.2861	-.1233	-1.458	1.104		
$1/2[du/d\lambda(k)M + du/d\lambda(k)F]$	1.890	1.050	-.2958	-.1314	-.9036	.8931		
Contribution to steady-state unemployment gap	.1846	1.799	-.1240	-1.535	1.589	-1.425	.4881	.8520

(1) Total difference between male and female steady-state unemployment rates (sum of contributions of transition probabilities). (2) Gender gap in the steady-state unemployment rates calculated using Markov and Shimer methods.

unemployment dynamics only in terms of flows to and from unemployment and employment.

The values in the last two columns are very similar in 2006–07; the steady-state gender unemployment gap (final column) decreases over the total period (from 2.2 per cent in 2006–07 to 0.85 per cent in 2012–13), thus clearly showing that during the recession, the gender gap narrowed. The reason for this is that the economic downturn affected male and female employment asymmetrically in Italy; the recession mainly affected industries that predominantly employed men, which resulted in an increase in male unemployment and therefore in a narrowing of the gender unemployment gap.

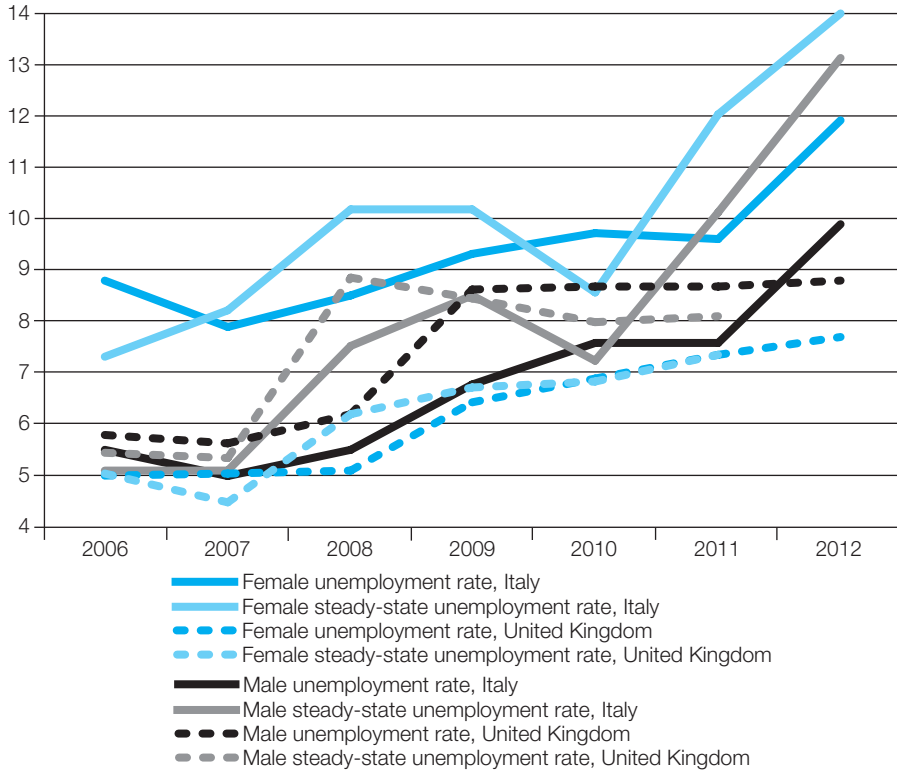
While the situation for women in Italy did not improve, the drop in male employment narrowed the gap between male and female unemployment.

The narrowing of the gender unemployment gap is also confirmed by official statistical data (figures 1 and 2); the gap fell from 3.3 per cent in 2006 to 2 per cent in 2012, as a result of the increase in the male unemployment rate, which rose from 5.5 per cent in 2006 to 9.9 per cent in 2012. The female unemployment rate also rose, but to a lesser extent (from 8.8 per cent in 2006 to 11.9 per cent in 2012).²² This smaller increase in women's unemployment confirms the presence of a significant discouragement effect, particularly for female labour force participants.

Figure 3 shows the official and steady-state male and female unemployment rates for Italy and the United Kingdom for the period 2006–12. The gen-

²² These figures are available at: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database.

Figure 3. Male/female official and steady-state unemployment rates, Italy and United Kingdom, 2006–12 (percentages)



der gap in unemployment rates in the United Kingdom shows that it is male labour force participants who are disadvantaged, in contrast to Italy. The structural characteristics of the labour market are different in the United Kingdom, where female labour force participants have better employment opportunities than their Italian counterparts.

Table 7 shows the transition possibilities used to calculate the steady-state unemployment rate in the United Kingdom. As in Italy, the strongest contribution to the gender unemployment gap is made by the flow from employment to inactivity (*ei*). Another similarity is that women show lower hazard rates for inactivity–unemployment (*iu*) and inactivity–employment (*ie*) flows than men.

The values in the last two columns are very similar, especially before the recession, and the steady-state gender unemployment gap (final column) increases very little over the period 2006–13. The gap increased slightly, as confirmed by the official statistics,²³ from 0.8 per cent in 2006 to 1.01 per cent

²³ These figures are available at: <http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Unemployment+Rates>.

Table 7. Steady-state gender unemployment gap based on labour market transition probabilities, United Kingdom

	λ_{eu}	λ_{ei}	λ_{ue}	λ_{ui}	λ_{ie}	λ_{iu}	(1)	(2)
2006–07								
Diff between transition probs (F-M)	-.0021	.0116	.0011	.1028	-.0132	-.0201		
$du/d\lambda(k)M$	2.574	1.203	-.1479	-.0788	-.2243	.2558		
$du/d\lambda(k)F$	2.169	.8896	-.1150	-.0670	-.3945	.5515		
$1/2[du/d\lambda(k)M + du/d\lambda(k)F]$	2.371	1.046	-.1315	-.0729	-.3094	.4036		
Contribution to steady-state unemployment gap	-.4785	1.212	-.0141	-.7499	.4085	-.8119	-.4338	-.4004
2012–13								
Diff between transition probs (F-M)	-.0048	.0098	-.0196	.0722	-.0060	-.0234		
$du/d\lambda(k)M$	2.967	1.733	-.2432	-.1012	-.3102	.2210		
$du/d\lambda(k)F$	2.785	1.443	-.2067	-.0996	-.5569	.5178		
$1/2[du/d\lambda(k)M + du/d\lambda(k)F]$	2.876	1.588	-.2249	-.1004	-.4336	.3694		
Contribution to steady-state unemployment gap	-1.385	1.563	.4404	-.7243	.2620	-.8649	.1560	-.6691

(1) Total difference between male and female steady-state unemployment rates (sum of contributions of transition probabilities). (2) Gender gap in the steady-state unemployment rates calculated using Markov and Shimer methods.

in 2012. Therefore, the recession did not have a significant effect on the gender unemployment gap in the United Kingdom because, unlike in Italy, the economic downturn affected male and female employment almost symmetrically; the effects of the recession resulted in an almost equal increase in male and female unemployment – both male and female unemployment rates increased by approximately 2.5 percentage points.²⁴

The main differences and similarities between Italy and the United Kingdom can be summarized as follows. In terms of differences, the situation for female labour force participants (both employed and unemployed) is better in the United Kingdom, especially in terms of employment opportunities for unemployed women. In Italy, by contrast, the situation is better for men – at least it was before the start of the recession, which affected Italian male and female employment asymmetrically, with industries typically employing men being the most affected. In terms of similarities, in both countries women's inactivity outflow (*ie* and *iu*) hazard rates are lower than men's.

Conclusions

While Italy and the United Kingdom have different institutional frameworks, their labour markets present high labour mobility overall. This mobility, how-

²⁴ The male unemployment rate increased from 5.8 per cent in 2006 to 8.5 per cent in 2012, whereas the rate for women increased from 5 per cent in 2006 to 7.5 per cent in 2012. As a result, the increase in unemployment rates due to the recession, for both men and women, was approximately 2.5 percentage points. These figures are available at: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database.

ever, affects the two countries' labour forces differently. We proposed a breakdown of the male–female unemployment rate, enabling us to identify, from a comparative perspective, the main labour market flows responsible for the gender unemployment gap.

Our analysis suggests that a more precise decomposition of the gender unemployment gap is obtained by considering inactivity in labour market flow models, since the flows from inactivity to employment represent a non-negligible component of overall inflows to employment. In this respect, women in both countries show a significantly lower probability of successful entry into the labour force (*pie*) than men.

Microeconomic estimates confirm this analysis, and highlight the differences and similarities between the two countries. One difference is bound up with the 2008 recession: our findings show that the effect of the recession on employment in Italy was asymmetrical; it affected male employment more than female employment, since the downturn particularly affected industries that employed mainly men.

Another difference is that the role of education in enhancing employment opportunities has essentially vanished in Italy, whereas in the United Kingdom – where the effect of the recession was more evenly distributed by sex – the role of education remains unchanged. Another important difference concerns the probability of young people aged 15–24 leaving unemployment. Compared to older workers, young people in Italy have fewer employment opportunities and show lower outflows from inactivity. In contrast, in the United Kingdom, young people have a lower unemployment rate and a higher labour force participation rate, although the unemployment proportion – the ratio of young unemployed to the corresponding population – is not negligible.

The two countries are similar in terms of the effect of unemployment duration; with regard to the outflows from unemployment, there is evidence of negative duration dependence. In addition, in both countries, it is more difficult for women than men to leave the state of inactivity. Our findings show that women and young people are disadvantaged in Italy's labour force, highlighting the need for suitable policies to be introduced to improve employment and unemployment conditions in Italy, particularly for these population categories.

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Appendix

The Italian labour force survey

The sampling design of the survey comprises two stages: 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 for households, a 2-2-2 rotation scheme is applied, while the municipalities surveyed do not change over time. More specifically, households were interviewed for two consecutive surveys and, after being excluded from the sample for two quarters, were interviewed for another two consecutive quarters. This is defined as a 2-2-2 rotation scheme.¹

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 per cent overlapping of the theoretical sample to a quarter of the total period, a 25 per cent overlapping to three quarters, a 50 per cent to four quarters, and a 25 per cent to five quarters. Our analyses are based on yearly longitudinal data for the period 2004–13.

These data are employed to compute the labour market transitions that determine the steady-state unemployment rate and the related gender differential, and to estimate the main determinants of the labour market transitions.

¹ For in-depth details on the sampling design, see Discenza and Lucarelli (2009).