How did the Great Recession affect Gender disparity in Europe? An analysis by a Multidimensional Deprivation approach

Amendola, Adalgiso and Dell'Anno, Roberto and Parisi, Lavinia

Department of Economics and Statistics, CELPE. University of Salerno – Via Giovanni Paolo II, 132 – Fisciano (SA) 84084 – Italy

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Adalgiso Amendola
Department of Economics and Statistics - CELPE
University of Salerno – Via Giovanni Paolo II, 132 – Fisciano (SA) 84084 – Italy
adamendola@unisa.it

Roberto Dell'Anno - (corresponding author)
Department of Economics and Statistics - CELPE
University of Salerno – Via Giovanni Paolo II, 132 – Fisciano (SA) 84084 – Italy
rdellanno@unisa.it

Lavinia Parisi
Department of Economics and Statistics - CELPE
University of Salerno – Via Giovanni Paolo II, 132 – Fisciano (SA) 84084 – Italy
laparisi@unisa.it

Abstract

This paper analyses how the Great Recession affected the gender disparity in material and social deprivation in Europe. We propose multidimensional non-monetary indexes of absolute and relative (i.e. using peer comparisons) deprivations estimated on data from the European Quality of Life Survey for the waves 2007 and 2011. We find that the Great Recession decreased gender disparity over all the dimensions of deprivations. By applying a Blinder-Oaxaca decomposition, we estimate that this decline of gender gap has depended on a reduction of the difference in characteristics between genders that has more than offset an increase of gender discrimination.

Keywords: Multidimensional deprivation; Gender gap; Great Recession; Blinder-Oaxaca decomposition

JEL: J16, I39.

1. Introduction

This research aims to evaluate the effects of the Great Recession (2008-2010) on gender disparities in multidimensional deprivation. We combine two strands of literature in the analysis of gender gap: on the one hand, the debate on the effect of economic crisis on gender disparities (ILO 2010; Espino 2013; Lahey and Villota 2013; Khitarishvili 2013; McKay et al. 2013; European Commission 2013; Ayhan 2015); on the other, the literature on gender disparity in income deprivation, by extending the analysis from a unidimensional monetary concept of deprivation to a multidimensional one (Klasen 2004; Bastos et al. 2009; Rogan 2016).

Literature on gender gaps argues that economic recessions may affect women more than men in several aspects. For instance, the contraction of jobs, particularly in informal and vulnerable employment areas, where women are generally overrepresented, may increase their vulnerability to unemployment and poverty (Périvier 2014). The contraction of public expenditures and of salaries of public sector workers, such as teachers and health and social service sectors workers, where women are predominant, may expose them to wage cuts, inequalities and deprivation (Ortiz 2014; European Commission 2013). In times of financial crisis, women may be disproportionately hurt by the lack of credits to the families, home foreclosures and loss of savings (Antonopoulos 2009; Eydoux et al. 2014). Furthermore, economic downturn, by increasing social instability and encouraging the spread of crime, may increase the risk of "violence against women, human trafficking, social conflict and gender disparities" (UNICRI, 2015, p. 5).

The European Commission (2013) reports that gender gaps in employment, unemployment, wages and poverty decreased slightly over the crisis in EU countries. This happened while employment and earnings deteriorated for both men and women and risk of poverty increased among men more than among women. However, as feminist literature finds out, the analysis of effect of economic recession - defined as a decline in GDP for two or more consecutive quarters – on gender disparities generally tends to overestimate the decrease in the standard of living, because it is based on an indicator, the GDP, that is biased due to the overweight assigned to the male contribution to economic production. GDP is measured indeed as the market value of all goods and services produced within a country in a given period of time. In this sense, it excludes goods and services produced for consumption and used by the family through unpaid domestic labor, largely carried out by women. In other words, economic growth and income disparities are generally defined and measured in a way that arbitrarily discriminates the gender, because it underestimates the values usually produced by woman. Accordingly, also in line with the World Economic Forum (2017), we analyze the effect of economic recession on gender gap by moving from a single monetary indicator to approach the gender disparity in terms of multidimensional deprivations.

The contribution of this paper is twofold. First, it analyses how the Great Recession has affected the gender disparity in material and social deprivation in Europe. In this context it contributes to the literature by proposing non-monetary multidimensional indexes of deprivation which take into account relative concerns.

Second, we decompose the gender gap in deprivation by Blinder-Oaxaca's approach to explore how much of the (multidimensional) gender gap is due to differences in demographic, educational, socio-economics, psychological and welfare systems characteristics rather than the different effects that these characteristics have between genders.

The empirical analysis is based on two cross-sections (waves 2007 and 2011-2012) of the *European Quality of Life Survey (*EQLS) dataset. This dataset, compiled from a representative household survey of people aged eighteen and older in 30 European countries,[1] enables an accurate estimation of deprivations across Europe.

We observe that the economic crisis has reduced gender gap as a consequence of two jointed effects. On the one hand, bad economic performances increase men's deprivations more than women and, on the other hand, women improve their condition more than men in some dimensions of deprivations, as "*House"* and "*Family life"*. In this variation of gender disparity the labor market plays a key role. As far as the effect of the Great Recession on relative conditions of demographic groups concerns, the most harmed people by recession are male with compulsory education.

The paper is organized as follows. The next section describes the proposed unidimensional and multidimensional deprivation indexes. Section 3 reports the empirical analysis and discusses the findings. Section 4 concludes. Definitions of the variables and details regarding the EQLS questions are provided in the Appendix A.

2. Multidimensional indexes of Relative and Absolute Deprivation

Deprivation can be defined as a condition in which a person is deprived of the essentials for reaching a minimum standard of well-being. Consequently, we assume that deprivations can be measured as the opposite of individual well-being.

A long-debate exists on whether the concept of "deprivation" has essentially a relative content. In psychological literature, the relevance of relative deprivation derives from the Festinger's (1954) theory of social comparison processes, which assumes that the tendency to compare oneself to a particular other person decreases as the differences between the other person and oneself.

The analysis of multidimensional deprivation has been growing very rapidly in the last decades. Following Aaberge and Brandolini (2015), three issues are preliminary to any multidimensional analysis of individual well-being: (i) the selection of the relevant dimensions; (ii) the indicators used to measure them and (iii) the procedures for their weighting.

In the first issue – the selection of the relevant dimensions – we assume that deprivation cannot be defined with reference to a single monetary income aspect only, but it should apply to several non-monetary domains that may affect human life experience (Poggi et al. 2011; Bellani 2013). A growing body of

[1] Five countries are not considered here because they do not have observations in both years considered.

literature addresses the relevance of multidimensional indexes of deprivation and well-being which do not only refer to material, economic, labor or health deprivation, but also to social deprivation and to inability to participate in society (e.g., Aaberge and Brandolini 2015 for a review). This approach implies that the relevant dimensions of deprivation should be as complete as possible to avoid omitted-variable bias. Taking the abundant empirical literature on deprivations into account (e.g., Atkinson 2003; Bossert et al. 2007; Navarro and Ayala 2011; Aaberge and Brandolini 2015), we focus the analysis on a set of non-monetary multidimensional indexes that are based on social comparisons over six domains: labor, standard of living, family, housing, health and social life.

In the second issue - the indicators used to measure deprivation – we provide two different indexes of deprivation. The first one is defined as the sum of individual absolute deprivations over all dimensions of deprivation, the second index calculates the percentage of people that are more deprived than a reference value based on their peer-group. In this second case, we are assuming that people derive their perceived deprivation not from being simply deprived, but from being more deprived than their reference group. Therefore, the proper indicators should take into account the difference between individual deprivation on each considered dimension and a benchmark (i.e. the minimally acceptable) level of deprivation in his/her reference group. This step of the analysis requires several arbitrary, and hence debatable, assumptions on the reference groups' composition. Following the suggestion of the main literature (e.g., D'Ambrosio and Frick 2007) we define reference groups based on four observable characteristics: (i) age classes; (ii) educational levels (iii) countries of residence and (iv) before and after economic crisis.

As far as the third issue concerns – the weights assigned to each dimension in the multidimensional index of deprivation – following the rule of thumb that simple hypotheses are preferable than more complex ones, we apply a weighting scheme in which for every individual all the dimensions of deprivations have the same relevance. The application of the simplest weighting system, by avoiding ad hoc hypotheses, prevents the risk of getting arbitrary results.[2] To conclude, we propose two overall deprivation indexes that take into account both absolute and relative deprivations.

2.1 Indexes of Absolute and Relative Non-Monetary Deprivation

Consider a population of N individuals exhaustively partitioned into *J* mutually exclusive groups on the basis of a set of *F* observable exogenous characteristics. Individuals face S relevant dimensions of deprivation, each measured by K_s sub-indicators. Let us denote $x_{i,s}^{k,j}$ as the outcome of indicator $k \in \{1,...,K\}$ over the dimension of deprivation $s \in \{1,...,S\}$ for individual $i \in \{1,...,N\}$ belonging to reference group $j \in \{1,...,J\}$. Absolute non-monetary deprivation is defined as the sum of individual

[2] As robustness check, we also apply a weighting structure that captures the importance assigned on average by each reference group to each dimension of deprivation. This reference-group based weighting scheme confirms the main findings. Results are available upon request.

deprivations for each of *s*-dimension. Relative non-monetary deprivation is defined by considering for each group *j*, a threshold z_s^j as indicating the minimally acceptable outcome for dimension *s*. That is, the *i*-th individual is defined as relatively deprived over dimension *s* if he has *k* indicators of deprivation above the minimally acceptable (i.e., median) level of deprivation for dimension *s* in his reference group.

Definition 1: *Index of absolute deprivation over dimension s*

The index of absolute deprivation of the *i*-th individual belonging the *j*-th reference group over the *s*-th dimension of deprivation ($Ad_{i,s}^j$) is calculated as follows:

$$\underset{(S\times i)}{Ad_{i,s}^j} = \sum_{k=1}^{K} x_{i,s}^{k,j} \tag{1}$$

Definition 2: *Overall index of absolute deprivation*

The overall index of absolute deprivation of individual *i* belonging to the *j*-th reference group ($o^A D_{i,s}^j$) is the sum of his absolute deprivations over all *S* dimensions of deprivation. This index is calculated as follows:

$$\underset{(1\times i)}{o^A D_i^j} = \sum_{s=1}^{S} Ad_{i,s}^j \tag{2}$$

Definition 3: *Index of relative deprivation over dimension s*

The relative deprivation of individual *i* belonging to the *j*-th reference group over the dimension of deprivation *s* ($Rd_{i,s}^j$) is calculated as follows:

$$\underset{(S\times i)}{Rd_{i,s}^j} = \begin{cases} 1 & if \quad Ad_{i,s}^j > z_s^j \\ 0 & if \quad Ad_{i,s}^j \le z_s^j \end{cases} \tag{3}$$

where $z_s^j = \underset{\forall k\in K, \forall i\in J}{Median}\left(x_{i,s}^{k,j} \right)$.

Definition 4: *Overall index of relative deprivation*

The overall index of relative deprivation of the *i*-th individual belonging to the *j*-th reference group ($o^R D_i^j$) is equal to 1 if the sum of his deprivations over all *S* dimensions of deprivation is lower than the median of his reference group's deprivations over all *S* dimensions. This index is calculated as follows:

$$\underset{(1\times i)}{o^R D_i^j} = \begin{cases} 1 & if \quad o^A D_i^j > o^A D_{Median}^j \\ 0 & if \quad o^A D_i^j \le o^A D_{Median}^j \end{cases} \tag{4}$$

where $o^A D^j_{Median} = \underset{\forall i \in J}{Median}\left(o^A D^j_i\right)$.

3 Empirical analysis

The main aim of the empirical analysis is to investigate how the Great Recession has affected the gender gaps in deprivation across Europe.

The dataset is the EQLS integrated data file 2003-2012 (EQLS 2014). EQLS is a representative household survey of people aged eighteen and older. Conducted every four years, EQLS examines a variety of issues, including employment, income, education, housing, family, health, work-life balance, life satisfaction and perceived quality of society. From this dataset, we selected 30 countries, for which we have data for the last two waves (2007 and 2011-12). To avoid the presence of redundant information in the proposed indicators, we combined certain items that are closely related (i.e. highly correlated).

Following the standard of empirical literature (e.g., Ferrer-i-Carbonell 2005), the reference group of each individual is assumed to be exogenous. In particular, we assume that an individual's reference group depends on individual exogenous qualities, such as educational level, age, wave and country of residence.[3] The surveyed population comprises N= 70,460 individuals who represent C=30 national populations. These 70,460 individuals are divided into J=550 reference groups based on a set of $F=4$ observable exogenous characteristics: (i) two waves; (ii) four age classes; (iii) three education levels and (iv) 30 countries.[4] Each individual faces S=6 relevant dimensions of deprivations: (i) labor; (ii) standard of living; (iii) accommodation; (iv) family life; (v) health and (vi) social life. Each dimension is measured by $K_s = \{3,7,7,3,3,5\}$ sub-indicators.[5] Details regarding the EQLS and the definitions of different types of deprivation are provided in Appendix A.

Table 1 shows the number of observations and the weighted percentages of individuals in the sample, by wave. Overall, female are more than male (51.8% vs. 48.2%) and this sample composition is stable across waves. However, if we look at age and education composition, we do find differences across time periods: the sample gets older with an increased proportion of individuals older than 50 years, as just individuals in the 2011 sample are more educated (23.5% vs. 18.4% of individuals with tertiary degree across waves).

[3] This assumption implies that individuals believe that educational disparities are beyond an individual's control and are strongly influenced by family background.

[4] Of the 720 potential reference groups, we had excluded those that contained less than 20 individuals to increase the reliability of reference group statistics. This exclusion decreased the total sample size by 1.6% and brought the number of reference groups down to 550 .

[5] Thus, an individual with a score of 2 in the labor dimension suffers from two of the three types of labor deprivations described in Appendix A. We define such an individual as "deprived in the labor dimension" if his\her score is higher than the reference group median.

Table 1. *Number of observations and weighted percentages of people in the sample by demographic characteristics and waves*

	2007		2011		Total
	N. of Obs.	Weight %	N. of Obs.	Weight %	N. of Obs.
Gender					
Female	18,540	51.72	21,675	51.85	40,215
Male	14,082	48.28	16,163	48.15	30,245
Age class					
18-34	8,207	31.25	8,910	29.26	17,117
35-49	9,075	28.07	9,684	27.01	18,759
50-64	8,367	22.48	9,850	23.27	18,217
65+	6,973	18.2	9,394	20.46	16,367
Education					
Compulsory	4,644	12.65	4,790	11.26	9,434
Secondary	22,101	68.95	24,397	65.28	46,498
Tertiary	5,877	18.4	8,651	23.46	14,528
Total	***32,622***	***100%***	***37,838***	***100%***	***70,460***

3.1 How did the Great Recession affect the different dimensions of deprivations in Europe?

In this section, we analyze how the deprivation in Europe has changed during the crisis aside from gender characteristics (Tab. 2) .

The *Indexes of absolute deprivation* ($Ad_{i,s}^{j}$) count the number of items in which the individual fails for each of the six domains. They are discrete variables in which the higher is the score, the more deprived the individual is. This counting approach is common in the analysis of deprivation in social sciences (Aaberge and Brandolini 2015).

As far as the *Indexes of relative deprivation* ($Rd_{i,s}^{j}$) are concerned, they count how many people are suffering from relative deprivation in any dimension, i.e. the number of individuals that have higher score than the median score of the *Index of absolute deprivation* in their reference group. Table 2 reports the descriptive statistics of both absolute and relative indexes and the variations occurred during the Great Recession.

***Table 2**: Changing in Absolute (eq.1) and Relative (eq.3) Deprivations before and after the Great Recession.*

Sub-index of Deprivation	Absolute (Mean)			Relative (%)		
	$^{2007}Ad^{j}_{i,s}$	$^{2011}Ad^{j}_{i,s}$	$^{2011}Ad^{j}_{i,s} - {}^{2007}Ad^{j}_{i,s}$	$^{2007}Rd^{j}_{i,s}$	$^{2011}Rd^{j}_{i,s}$	$^{2011}Rd^{j}_{i,s} - {}^{2007}Rd^{j}_{i,s}$
Labor Deprivation	0.223	0.262	0.039 *	15.24	17.87	2.63*
(s.e.)	*(.00338)*	*(.00334)*		*(.00235)*	*(.00223)*	
Standard of Living	1.420	1.636	0.216*	35.55	37.63	2.08*
(s.e.)	*(.01139)*	*(.01071)*		*(.00304)*	*(.00275)*	
House	0.825	0.777	-0.048*	34.39	33.28	-1.11*
(s.e.)	*(.00755)*	*(.00642)*		*(.00304)*	*(.00268)*	
Family life	0.423	0.682	0.259*	17.79	18.03	0.24
(s.e.)	*(.00332)*	*(.00357)*		*(.00218)*	*(.00223)*	
Health	0.406	0.436	0.030*	22.84	23.81	0.97*
(s.e.)	*(.00477)*	*(.00432)*		*(.00259)*	*(.00237)*	
Social Life	0.641	0.822	0.181*	34.16	35.85	1.69*
(s.e.)	*(.00621)*	*(.00631)*		*(.00301)*	*(.00272)*	
Overall#	3.939	4.616	0.677*	42.29	43.48	1.19*
(s.e.)	*(.02217)*	*(.02087)*		*(.00313)*	*(.00281)*	

*Note: * stands for differences statistic significant at 5% level; # Overall index as defined in eq.2 and eq.4, for absolute and relative indexes respectively.*

We find that during the crisis: the overall index of absolute deprivation grows by 17.2% (from 3.939 to 4.616); the absolute indexes increase over all the dimensions of deprivation, with the exclusion of "*House*"; these increases of deprivations are particularly high for *Social Life* (+28.2%) and *Labor* (+17.5%) dimensions.

As far as the relative dimensions of deprivation are concerned, the results show as the dimensions with the largest increases of people relatively deprived are *Labor (+17.3%), Standard of Living* - basically related to income deprivation and financial difficulties - (+5.9%) and *Social Life (+4.9%).* On the contrary, relative deprivation in *Family life* doesn't significantly change as consequence of Great Recession.

As far as the deprivation in "*House*" dimension is concerned, we find that both the absolute and relative indexes decrease during the crisis. As we explain in the next section, we interpret this result by using Duflo (2003), Schatz (2007) and Rogan (2016) argument on different allocation of household income between women and men on household income. Specifically, women tend to spend differently than men household income and, as pointed out by Rogan (2016), women allocate income to nutrition, health and other family expenses more than men. Taking into account that during the Great Recession the female employment rate decreases less than male, therefore there is a larger female control of household income in the 2011 than in the 2007. As a result, this income re-allocation in the family may explain the observed decrease of *House* deprivation.

3.2 How did the Great Recession affect the gender disparity in Europe?

In order to explore the effect of the Great Recession on the gender gap over the selected dimensions of deprivation, we calculate the *Indexes of absolute ($Ad^j_{i,s}$) and relative deprivation ($Rd^j_{i,s}$)* by gender (Table 3).

***Table 3**: Changing in Absolute (eq.1) and Relative (eq.3) Deprivations by gender and before and after the Great Recession.*

	Absolute (Mean) ($Ad^j_{i,s}$)					
Sub-index of Deprivation	${}^{'07}_{M}Ad^j_{i,s}$	${}^{'07}_{F}Ad^j_{i,s}$	${}^{'07}_{M}Ad^j_{i,s} - {}^{'07}_{F}Ad^j_{i,s}$	${}^{'11}_{M}Ad^j_{i,s}$	${}^{'11}_{F}Ad^j_{i,s}$	${}^{'11}_{M}Ad^j_{i,s} - {}^{'11}_{F}Ad^j_{i,s}$
Labor Deprivation	0.170	0.273	-0.103*	0.238	0.284	-0.046*
s.e.	(.00471)	(.00479)		(.00516)	(.00430)	
Standard of Living	1.276	1.556	-0.280*	1.494	1.768	-0.274*
s.e.	(.01652	(.01565)		(.01608)	(.01423)	
House	0.786	0.861	-0.075*	0.743	0.809	-0.066*
s.e.	(.01113)	(.01026)		(.00971)	(.00849)	
Family life	0.409	0.436	-0.027*	0.672	0.691	-0.019
s.e.	(.00498)	(.00442)		(.00537)	(.00476)	
Health	0.347	0.461	-0.114*	0.388	0.481	-0.093*
s.e.	(.00660)	(.00681)		(.00624)	(.00595)	
Social Life	0.618	0.664	-0.046*	0.803	0.841	-0.038*
s.e.	(.00928)	(.00832)		(.00964)	(.00825)	
Overall#	3.607	4.249	-0.642*	4.339	4.873	-0.534*
s.e.	(.03198)	(.03054)		(.03189)	(.02718)	
	Relative (%) ($Rd^j_{i,s}$)					
Sub-index of Deprivation	${}^{'07}_{M}Rd^j_{i,s}$	${}^{'07}_{F}Rd^j_{i,s}$	${}^{'07}_{M}Rd^j_{i,s} - {}^{'07}_{F}Rd^j_{i,s}$	${}^{'11}_{M}Rd^j_{i,s}$	${}^{'11}_{F}Rd^j_{i,s}$	${}^{'11}_{M}Rd^j_{i,s} - {}^{'11}_{F}Rd^j_{i,s}$
Labor Deprivation	11.99	18.26	-6.27*	16.08	19.52	-3.44*
s.e.	(.00323)	(.00337)		(.00331)	(.00300)	
Standard of Living	32.21	38.67	-6.46*	34.28	40.74	-6.46*
s.e.	(.00451)	(.00409)		(.00411)	(.00366)	
House	33.23	35.48	-2.25*	31.93	34.53	-2.6*
s.e.	(.00456)	(.00401)		(.00405)	(.00354)	
Family life	15.04	20.36	-5.32*	17.19	18.81	-1.62*
s.e.	(.00304)	(.00310)		(.00337)	(.00295)	
Health	20.26	25.25	-4.99*	21.88	25.62	-3.74*
s.e.	(.00373)	(.00356)		(.00349)	(.00321)	
Social Life	33.34	34.92	-1.58	34.57	37.05	-2.48*
s.e.	(.00452)	(.00399)		(.00411)	(.00360)	
Overall$	38.69	45.65	-6.96*	39.89	46.82	-6.93*
s.e.	(.00467)	(.00419)		(.00425)	(.00372)	

*Note: * stands for differences statistic significant at 5% level; # Overall index as defined in eq.2; $ Overall index as defined in eq.4*

As absolute deprivations *($Ad^j_{i,s}$)* regard, Table 3 shows that men are less deprived than women in all the selected dimensions and for both the waves and those differences are always significant. Moreover, the gender gap decreases after the economic crisis. In particular, the overall absolute gender gap decreases by more than 16%, from -0.64 to -0.53, and the caching up reveals that after the economic crisis men are those to be worst off compared to women. In other words, between 2007 and 2011 the overall deprivation

increased for both men (from 3.61 in the 2007 to 4.34 in the 2011; Δ = +0.73) and women (from 4.25 to 4.87; Δ = +0.62), but men became relatively more deprived than women.

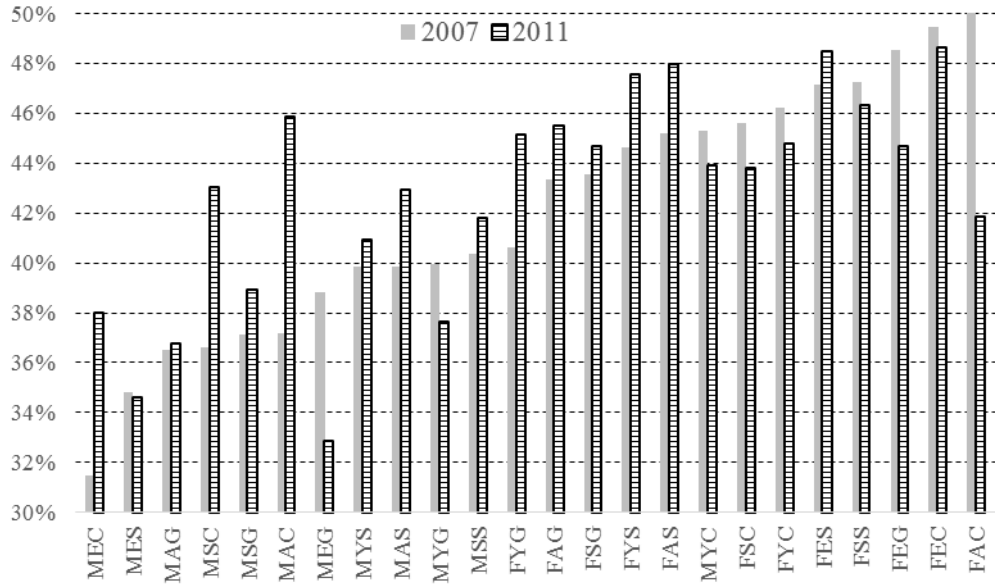
In this regard, the *Labor* dimension of deprivation plays a crucial role. We find that *Labor* deprivation increased between 2007 and 2011 both for male and female, but men became much more deprived (+60.6%) than women (+19.3%).

Family life absolute gender gap decreased too by almost 30%. Indeed, *Family life* deprivation increased between 2007 and 2011 both for male (0.027) and female (0.019), but women have worsen their family life conditions less than men.

As far as relative deprivation concerns, the overall gender gap does not seem to have been affected by the crisis. Table 3 shows that in all the selected dimensions of relative deprivation, the percentage of deprived men is lower than the percentage of women both in 2007 and in 2011 and the overall relative gender gap does not change (gender gap here is calculated as the differences between the percentage of deprived men minus the percentage of deprived women). Nevertheless, with regards to the single dimensions of relative deprivation, we find that gender gaps decreased in the *Labor* dimension (from -6.27 percentage points to -3.44 percentage points respectively in 2007 and 2011) and in *Family Life* dimension (from -5.32 percentage points to -1.62 percentage); while it increased instead in *Social Life* dimension by almost 70% (from -1.58 to -2.48 percentage points respectively in 2007 and 2011).

Figure 1 provides descriptive statistics for the *Overall index of relative deprivation* ($o^R D_i^j$) by aggregating individuals by gender, education and age class. Results are plotted by the least to the most deprived group in 2007.

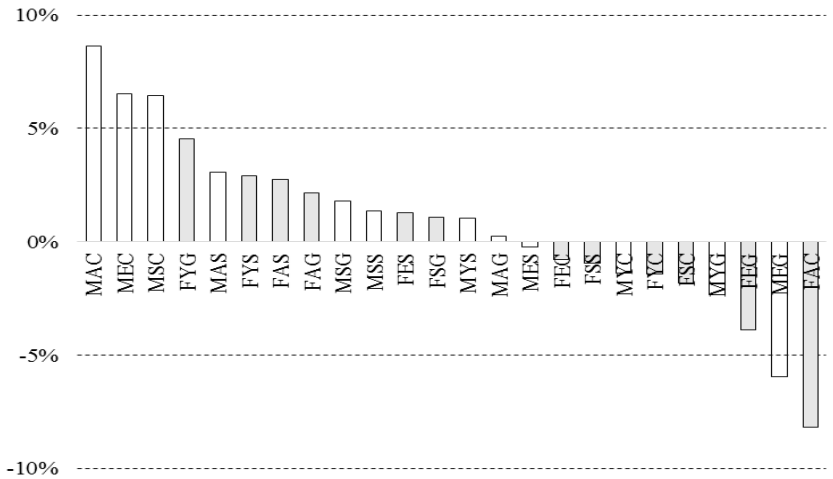
***Figure 1**: Overall index of relative ($o^R D_i^j$ - eq.4) deprivation by cluster.*



*Note: Individuals are grouped in 24 clusters. The initials stand for: **M**ale/**F**emale; **Y**outh/**A**dult/**S**enior/**E**lderly; **C**ompulsory education/**S**econdary ed./**G**raduate.*

Figure 1 displays which are the most deprived groups and shows the effect of economic crisis in terms of relative deprivation for each of these clusters. The graphical analysis clearly shows that men are ranked better than women before the crisis. To provide an example on the empirical evidence provided by Figure 1, let's consider a comparison between two groups as MEC and FEC. Figure 1 points out that by comparing people living in the same country, in the same period, with the same level of education (C = compulsory) and age class (E = elderly) - the percentage of men that have a number of items higher than the median of their group (i.e. MEC) is about 32%, while the corresponding percentage of women in this reference group (i.e. FEC) is about 49%.
Figure 2 shows differences in percentage points between 2007 and 2011.

***Figure 2**: Differences between 2011-2007 in deprivations in reference groups as %*



(white bars are men)

We observe that the economic crisis significantly changes the ranking observed in Figure 1. Moreover, it reveals as men are usually worsening their condition between 2007 and 2011, more than women. In particular, the most vulnerable reference groups have been men with compulsory education (MAC, MEC and MSC). As far as female condition concerns, the most relevant result is that the percentage of women with compulsory education significantly reduces during the Great Recession. As we explain in the section 3.3, we consider this positive finding as a consequence of the effect of crisis on European female labor market participation.

3.3. How did labor market affect gender disparity during the Great Recession?

Our empirical evidence converges on the general findings of the literature that the labor market plays a key role in explaining how economic crisis affects gender gap (ILO 2010, Gálvez and Rodríguez-Modrono 2011, 2014; Ayhan 2015; Khitarishvili 2013).

Khitarishvili (2013) summarizes the channels potentially responsible for the heterogeneous effects of economic recession on male and female labor force participation. They involve both demand and supply side of labor market. As the demand side regards, economic recession has different effects on different economic sectors; women are more likely to work in counter-cycle sectors (e.g. health, educational and public sectors), whereas men are more likely to work in pro-cycle sectors (e.g. construction, manufacturing sector). Accordingly, the initial sectorial contraction hits men more than women and, as a result, it decreases gender gap in labor dimension. From the supply side, Khitarishvili (2013) recalls two channels potentially responsible for the heterogeneous impact of a shock in the labor demand on men and women's labor supply: a household-specific income shock that may cause the well-known Added Worker Effect (AWE) and a general worsening of the macroeconomic environment that may cause a Discouraged Worker Effect (DWE). As it is well known, according to the AWE an increase in male unemployment rate increases female labor supply due to two potentially concomitant effects. The first effect occurs because, if the husband loses his job, thus the nonparticipating (or part-time) wife tries to compensate the reduction of household's income by looking for a job or by increasing the time of work. A second effect is due to the circumstance that the unemployed husband has more leisure time, and it therefore decreases the relative value of the wife's non-market time. Furthermore, following Lundberg (1985), unemployed husbands may substitute the housewives in household activities, so women increase their labor supply.

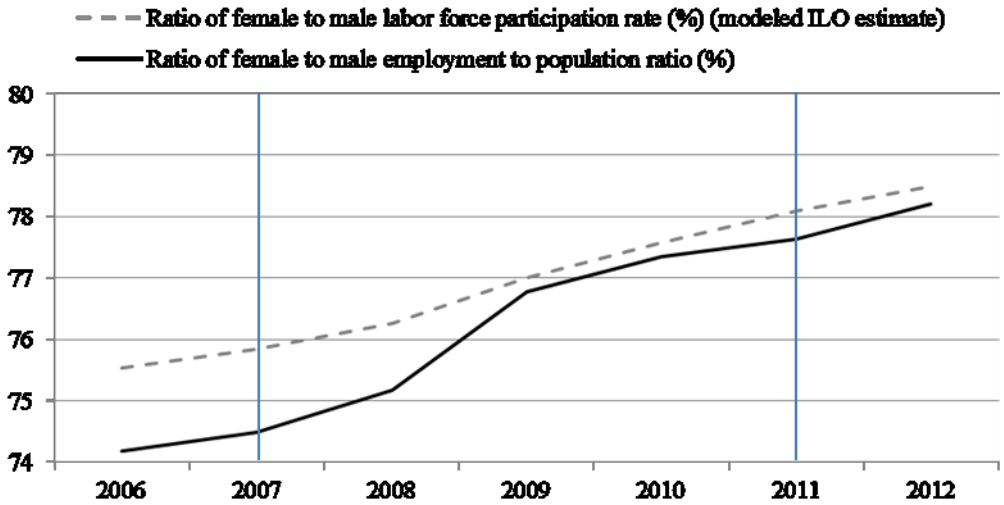
According to the DWE hypothesis, a worse general economic context increases perceived and actual job search costs and discourages unemployed workers, consequently decreases labor supply for all the household components.[6]

For this reason, a lower gender gap in labor dimension may depend on a difference in how male and female labor supply responds to an economic downturn. Women have higher propensity than men to accept lower paid and/or less unrewarding job than men therefore female and male labor force participation rates react differently to worsened labor market conditions.

Figure 3 supports this hypothesis by empirical evidence using a different dataset (World Development Indicators – WDI) than EQLS.

[6] Focusing on effect of the DWE on gender gap, it may reduces gender gap, only if female employment perspectives are better than male. It may be the case when due to the evidence that female-dominated sectors are usually counter-cyclical and hypothesizingthat the woman reservation wage decreases during the crisis more than men for AWE.

***Figure 3**: Ratio of female to male labor force participation rate and employment to population ratio*



Source: World Development Indicators; countries: European Union.

Figure 3 reveals an increase in both the ratio of female to male labor force participation rate and in the ratio of female to male employment to population ratio. The observed increase of about 3 percentage points of the ratio of female to male employment rate between 2007 and 2011 is due to a decrease of the male employment to population ratio from 61.2 percent to 58.6 percent, whereas female employment to population ratio is almost constant from 45.6 percent to 45.5 percent. This finding is also confirmed by using EQLS dataset. Table 4 shows that the male employment rate decreases much more than female one (-6.19% and -0.75% respectively) and that the main source of this difference is a significant flow of women that move from the status of housewives (-3.51 %) to unemployed (+1.8 %).

Table 4: *Individual status and gender gap between 2007 and 2011 in labor market.*

Status	Male		Crisis Effect	Female		Crisis Effect	Gender Gap	
	2007	2011	(2011-2007)	2007	2011	(2011-2007)	$M_{'07}$-$F_{'07}$	$M_{'11}$-$F_{'11}$
Employed	60.69%	54.50%	*- 6.19%*	42.52%	41.77%	*- 0.75%*	***+ 18.17%***	***+ 12.73%***
Unemployed	5.59%	9.82%	*+ 4.23%*	5.60%	7.40%	*+ 1.80%*	***- 0.01%***	***+ 2.42%***
Homemaker	0.32%	0.55%	*+ 0.23%*	17.50%	13.99%	*- 3.51%*	***- 17.18%***	***- 13.44%***
Total	14,082	16,163		18,540	21,675			

Source: EQLS (own elaboration)

Our hypothesis corroborates Blau and Khan's (2017) conclusions on the reasons behind the reduction of gender pay gap in the United States. They show as, over the 1980-2010 period, the improvements in women's occupation, education and union representation played a crucial role in the decline of gender pay gap.

3.4 How did individual characteristics affect the gender disparity before and after the economic crisis? The Blinder-Oaxaca decomposition.

In this section we apply the Blinder-Oaxaca decomposition to analyze the determinants of differences between female and male deprivations before and after crisis. It is a decomposition method, first introduced by Blinder (1973) and Oaxaca (1973) and developed by a number of researches to enhance the method by introducing nonlinear regression such as count model (Sinning et al., 2008; Powers et al., 2011; Fortin et al., 2011). The core idea of the Blinder-Oaxaca decomposition is to explain the gap in the means of the outcome of interest (i.e. the multidimensional deprivation) between two groups (i.e. male and female). The estimated gap is then decomposed into two parts: the first one is the one due to group differences in the size of the determinants (the so-called *explained* gap)[7]; the second part is due to the group differences in the effects of these determinants (the so-called *unexplained* gap)[8]. Taking into account that Blinder-Oaxaca suffers of various limitations in providing a quantitative measure of the relevance of estimated gender gap (Fortin et al. 2011), we aim to analyze whether the explained and unexplained components of the gender gap vary by waves (i.e. as consequence of Great Recession), rather than exhaustively quantifying them.

In particular, we estimate the first component - so-called "explained effect" of the gender gap - by the difference between male and female in demographic and economic characteristics (age, education achievements, household size, equivalent income, wealth); psychological traits and subjective satisfactions (optimism, satisfactions in seven dimensions, perception of social tension between gender) [9] and controlling for the characteristics of labor market institutions and welfare systems[10]. Table 5 shows these estimates by waves and gender as included in *Blinder-Oaxaca* decomposition.

[7] Each covariate contributes to the explained gap for the portion due to difference between the distribution of the covariate in the two groups (i.e. male and female).

[8] Each covariate contributes to the unexplained gap for the portion due to differences in the parameters associated with the covariate in the two groups.

[9] We assume that optimistic and pessimistic tendencies impact on individual's motivation and, as a conseguence, in each dimensions of their deprivations.

[10] We extend the European Commission's (2006, 2007) classification of European countries according to three dimensions of labour market/flexicutiry systems: income/employment security; numerical external flexibility/employability and tax distortions.. Specifically, we define 6 groups: Mediterranean, Conservatives, Social Democratic, Liberal, Central Eastern Europeanand Baltic countires. These 6 dummy variable test the hypothesis that the individual deprivations are also affected by the nature of welfare system and labour market features of the country of residence.

Table *5:* *Poisson Estimates for Blinder-Oaxaca decomposition by gender;*

Variables	2007			2011		
	Female	**Male**	**All**	**Female**	**Male**	**All**
Age	-0.01***	-0.00**	-0.01***	-0.01***	-0.00	-0.00***
Age Square	0.00***	0.00*	0.00	0.00	-0.00	0.00**
Secondary Ed.	-0.12***	-0.06***	-0.11***	-0.13***	-0.15***	-0.14***
Tertiary Ed.	-0.23***	-0.23***	-0.24***	-0.22***	-0.27***	-0.24***
Log Household size	-0.21***	-0.28***	-0.25***	-0.21***	-0.25***	-0.23***
Log Equivalent Inc.	-0.25***	-0.27***	-0.26***	-0.20***	-0.19***	-0.20***
Having wealth	-0.24***	-0.18***	-0.22***	-0.21***	-0.22***	-0.22***
Optimistic	-0.15***	-0.19***	-0.17***	-0.10***	-0.14***	-0.12***
Satisfied Education	0.02**	0.05***	-0.03**	0.02**	0.02**	0.02***
Satisfied Job	-0.25***	-0.22***	-0.24***	-0.23***	-0.25***	-0.25***
Satisfied Life	-0.28***	-0.28***	-0.27***	-0.27***	-0.30***	-0.27***
Satisfied House	-0.21***	-0.21***	-0.21***	-0.18**	-0.20***	-0.19***
Satisfied Family	0.01	0.01	0.01	-0.02**	-0.00	-0.01*
Satisfied Health	-0.23***	-0.25***	-0.24***	-0.25***	-0.28***	-0.26***
Satisfied Social	-0.09***	-0.13***	-0.11***	-0.12***	-0.15***	-0.17***
Some gender tension	-0.09***	-0.14***	-0.11***	-0.14***	-0.12***	-0.13***
No gender tension	-0.09***	-0.16***	-0.12***	-0.17***	-0.15***	-0.17***
Conservatives	-0.05***	-0.09***	-0.06***	-0.13***	-0.13***	-0.13***
Social Democratic	-0.21***	-0.24***	-0.22***	-0.23***	-0.18***	-0.21***
Liberal	-0.04	-0.06**	-0.05***	-0.03*	-0.04**	-0.03***
Cee	0.02	0.02	0.02**	-0.08***	-0.06**	-0.07***
Baltic	0.07***	0.05**	0.07***	0.06***	0.01	0.05***
Constant	4.46***	4.56***	4.52***	4.36***	4.30***	4.36***
N. of observations	*12,850*	*9,993*	*22,843*	*16,486*	*12,475*	*28,961*
Log Likelihood	*-30,069*	*-22,219*	*-52,393*	*-39,122*	*-28,525*	*-67,766*

*Note: ***, **, * indicate significance at the 1%, 5% and 10% level respectively.*

Subsequently, we estimate the "unexplained gap" as the consequences of both the differences in the effects of those variable on deprivation (i.e. gender discrimination) and the effects of other explanatory variables omitted in the regression (i.e. unobservables), that we assume are constant over time.

This second step focuses on whether the reduction of the observed gender gap during the Great Recession depended on a reduction of the difference in endowments rather than on a different effect of these endowments between men and women (i.e. discrimination).[11]

Table 6 reports the findings of Blinder-Oaxaca decomposition[12] based on a Poisson model applied to count data.

[11] To clarify by an example, the gender gap is assumed to depend on difference in endowments - e.g. if men have higher education than women thus we observe higher female deprivation - and/or difference in the effect that endowments have on men and women - e.g. man with tertiary education have better job opportunities, higher wages than women with the same education level, thus women have higher deprivation because discriminated in labour market.

Table 6. *Blinder-Oaxaca decomposition of gender gap*

Deprivation	Estimated Means			Percentage (%)		
	2007	2011	Total	2007	2011	Total
Explained	-0.585***	-0.490***	-0.528***	69.1	61.6	64.4
	(.00926)	(.00735)	(.00563)			
Unexplained	-0.261***	-0.305***	-0.292***	30.9	38.4	35.6
	(.03106)	(.02799)	(.02074)			
Total	**-0.846*****	**-0.795*****	**-0.820*****	**100.0**	**100.0**	**100.0**
	(.02760)	(0.2551)	(.01875)			

*Note: *** indicates significance at the 1% level. Standard errors are in brackets.*

First, the columns of "*Estimated Means*" report the differences between male and female in the multidimensional deprivation gap. The negative signs of the estimated means indicate that women are more deprived than men. The estimated gender gap has reduced from -0.846 to -0.795 during the Great Recession. On average, women have almost one additional item of deprivation than men (precisely 0.820 item more).

Second, the columns "*Percentage*" report these differences in gender gap as percentages by decomposing in explained and unexplained component. We find that, the most part of the gender gap is explained by differences in characteristics between men and women (64.4%) rather than differences in their effects, i.e. female discrimination (35.6%).

Third, the reduction of total gender gap is explained as a consequence of two opposite effects: on the one hand, the difference in endowments between genders decreases (i.e. $|0.490|-|0.585|=-0.095$) on the other hand, the difference in discrimination increases (i.e. $|0.305|-|0.261|=+0.044$). Accordingly, although we observe a reduction of gender gap, it is mainly due to a lower reduction of female endowments compared to men rather than a diminution of female prejudice, indeed, gender discrimination increases from 30.9% to 38.4%.[13]

For the sake of completeness, we apply Blinder-Oaxaca's approach to decompose all the single dimensions of deprivation. Table 7 summarizes the main results of this analysis.

[12] Estimates are not reported for the sake of brevity and are available upon request.

[13] We test if the results are robust to modification of sample size. In particular, we exclude the log equivalized income, because of missing values, to increase the sample size of 18,656 individauls (i.e., from 51,804 to 70,460 individuals). The results are robust to this changes. Details are available upon request from the authors.

Table 7. *Blinder-Oaxaca decomposition of each dimension of gender gap*

Variables	Deprivation	Estimated Means			Percentage (%)		
		2007	2011	Total	2007	2011	Total
Labor	Expl.	-0.040***	-0.043***	-0.041***	41.7	64.5	**51. 9**
	Unexpl.	-0.056***	-0.023***	-0.038***	58.3	35.5	**48.1**
	Total	*-0.096****	*-0.066****	*-0.0795****	*100.0*	*100.0*	***100.0***
Standard of Living	Expl.	-0.222***	-0.199***	-0.209***	58.8	51.1	**54.5**
	Unexpl.	-0.155***	-0.189***	-0.175***	41.2	48.9	**45.5**
	Total	*-0.378****	*-0.388****	*-0.384****	*100.0*	*100.0*	***100.0***
House	*Expl.*	*-0.092****	*-0.068****	*-0.078****	*79.1*	*57.8*	***66.9***
	Unexpl.	*-0.024**	*-0.049****	*-0.038****	*20.9*	*42.2*	***33.1***
	Total	*-0.116****	*-0.118****	*-0.117****	*100.0*	*100.0*	***100.0***
Family life	*Expl.*	*-0.015****	*-0.028****	*-0.022****	*20.4*	*58.8*	***38.0***
	Unexpl.	*-0.057****	*-0.193***	*-0.037****	*79.6*	*41.2*	***62.0***
	Total	*-0.072****	*-0.047****	*-0.059****	*100.0*	*100.0*	***100.0***
Health	*Expl.*	*-0.085****	*-0.070****	*-0.076****	*73.3*	*74.1*	***72.8***
	Unexpl.	*-0.031****	*-0.025***	*-0.028****	*26.7*	*25.9*	***27.2***
	Total	*-0.115****	*-0.095****	*-0.104****	*100.0*	*100.0*	***100.0***
Social Life	*Expl.*	*-0.082****	*-0.063****	*-0.071****	*119.4*	*78.9*	***92.0***
	Unexpl.	*0.013*	*-0.017*	*-0.006*	*-19.4*	*21.1*	***8.0***
	Total	*-0.068****	*-0.081****	*-0.076****	*100.0*	*100.0*	***100.0***

*Note: ***, **, * indicate significance at the 1%, 5% and 10% level respectively.*

Findings based on single dimensions of deprivation indexes provide a better picture of the overall gender gap. Bearing in mind the three main results on the previous analysis, we find that: (i) the economic crisis reduces gender gaps in *Labor, Family Life* and *Health* deprivations, while the gap increases in *Social Life* and remains approximatively stable in *Standard of Living* and *House* Deprivation (see the columns of "*Estimated means*" of table 7); (ii) such as for the overall index of absolute deprivation, the most part of the gender gaps are explained by differences in characteristics between genders except for *Family Life* (see the last column of table 7); (iii) as the third result concerns – i.e. the rationales behind reduction of gender gaps – we find a multifaceted scenario. A lower reduction of female characteristics compared to men occur only for *Standard of Living* and *House* but it doesn't hold for *Labor, Family Life* and *Health* dimensions of deprivation. As a consequence, we infer that gender discrimination changes in different ways over the dimensions of deprivation during the Great Recession.

4. Conclusions

This analysis aims to contribute to the economic literature by analyzing the effects of the economic crisis on gender gap in Europe, in terms of multidimensional deprivation. From a methodological perspective, we propose a set of multidimensional indexes both of absolute and relative deprivation.

Findings indicate that between 2007 and 2011, the gender disparity decreased, in terms of absolute deprivation and doesn't change in terms of relative deprivation. In line with the empirical evidence emerging in other studies, we find that although overall deprivation has increased for both men and women, gender gap diminishes because men became relatively more deprived than women. A key role in this regard is played by the labor market. The mainstream interpretation argues that the employment gender gap is more likely to decrease due to a worsening in the male employment rate rather than a rise in the female one. The rationale of this result is that economic recession hits mainly pro-cycle sectors (e.g. construction, manufacturing sector) in which men are more likely to work in whereas women are more likely to work in counter-cycle sectors (e.g. health, educational and public sectors).

Moreover, due to the major role that occupation status has in social and psychological terms for men compared to women, this negative effect of crisis on male unemployment was furtherly transmitted to other dimensions of deprivation. For women, instead, we observe a smaller reduction in labor deprivation, mostly because, as we have seen, during the crisis the discouraged worker effect is partly dominated by the added worker effect. However this lower female deprivation in labor dimension does not produce an equivalent effect in reducing deprivation in the other dimensions of life considered. A possible interpretation of this result may be that the improvement of female relative condition has not yielded an improvement of the female salary and social life, due to the lower quality of new jobs of women.

Actually we find a complex situation in terms of effects of the crisis on the other dimensions of deprivation. In particular, if similarly to "*Labor*", in "*Family life*" and "*Health*" dimensions the gender gaps decreased, for other dimensions, such as "*Social life*" and "*House*", the gender disparities have been increased during the crisis.

We proposed a Blinder-Oaxaca decomposition of gender gap to investigate how much of this gender disparity is due to differences in characteristics instead of a pure discrimination. We find that the reduction of the gender gap observed during the Great Recession has depended on two contrasting effects: on the one hand, a reduction in the difference in endowments between genders, on the other hand, an increase in the difference in discrimination. Accordingly, the reduction of gender gap, is due to the first effect (i.e., lower reduction of female endowments compared to men) which is larger than the second one (i.e., the increase of gender discrimination).

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Appendix A –Variables definitions

Table A1: Reference Groups composition

Variables	EQLS label	Item	Reference category is denoted by *
		Reference groups composition	
Age	*Y11_Agecategory*	Age of the respondent: 4 categories	*18-34*, 35-49, 50-64, 65+*
Edu	*Y11_Education*	Education: 3 categories	Primary or less*; Secondary; Tertiary. Completed education abroad; Don't know; Refusal are recoded as missing.
Country	*Y11_Country*	30 Countries	Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Rep., Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Turkey, UK.
Time dummy	*waves*	2nd and 3rd Wave of EQLS	EQLS 2007*; EQLS 2011

Table A2: Questions to build the Sub-index of Labor Deprivation

1- Labor Deprivation			
Variables	**EQLS label (Dummy=1 if …)**	**Questions**	*** indicates the category associated to a deprivation status**
A1_Dep1 (NoJob)	*Y11_HH2d = 4, 5, 6*	HH2d Which of these best describes your situation?	1- at work as employee or employer/self-employed ; 2- employed, on child-care leave or other leave; 3-at work as relative assisting on family farm or business ; 4-unemployed less than 12 months*; 5- unemployed 12 months or more*; 6- unable to work due to long-term illness or disability*; 7-retired; 8-full time homemaker/ responsible for ordinary shopping and looking after the home; 9- in education (at school, university, etc.) / student; 10-other.
A2_Dep1 (LongUnemp)	*Y11_HH2d = 5*	HH2d Which of these best describes your situation?	1-at work as employee or employer/self-employed ; 2-employed, on child-care leave or other leave; 3-at work as relative assisting on family farm or business; 4-unemployed less than 12 months; 5-unemployed 12 months or more*; 6- unable to work due to long-term illness or disability; 7-retired; 8-full time homemaker/ responsible for ordinary shopping and looking after the home; 9- in education (at school, university, etc.) / student; 10-other.
A3_Dep1 (PaidJob)	*Y11_Q1 = 2*	Q1 Have you ever had a paid job?	1-Yes; 2-No*; 98- Don't Know; 99-Refusal.

Table A3: Questions to build the Sub-Index of Standard Living Deprivation

2- Standard of Living Deprivation			
Variables	**EQLS label (Dummy=1 if …)**	**Questions**	*** indicates the category associated to a deprivation status**
A1_Dep2 (Holiday)	*Y11_Q59b = 2*	Q59b Paying for a week's annual holiday away from home (not staying with relatives).	1-Yes, can afford if want; 2-No, cannot afford it*; 98-Don't know; 99-Refusal.
A2_Dep2 (Furniture)	*Y11_Q59c = 2*	Q59c Replacing any worn-out furniture.	1-Yes, can afford if want; 2-No, cannot afford it*; 98-Don't know; 99-Refusal.
A3_Dep2 (Clothes)	*Y11_Q59e = 2*	Q59e Buying new, rather than second-hand, clothes.	1-Yes, can afford if want; 2-No, cannot afford it*; 98-Don't know; 99-Refusal.
A4_Dep2 (Friends)	*Y11_Q59f = 2*	Q59f Having friends or family for a drink or meal at least once a month.	1-Yes, can afford if want; 2-No, cannot afford it*; 98-Don't know; 99-Refusal.
A5_Dep2 (Rent)	*Y11_Q60a = 1*	Q60a Has your household been in arrears at any time during the past 12 months, that is, unable to pay as scheduled: Rent or mortgage payments for accommodation	1-Yes*; 2-No; 98-Don't know; 99-Refusal.
A6_Dep2 (Bill)	*Y11_Q60b = 1*	Q60b Has your household been in arrears at any time during the past 12 months, that is, unable to pay as scheduled: Utility bills, such as electricity, water, gas	1-Yes*; 2-No; 98-Don't know; 99-Refusal.
A7_Dep2 (Meals)	*Y11_Q58 =5, 6*	Q58 Is your household able to buy fresh meals	1 Very easily; 2 Easily; 3 Fairly easily; 4 With some difficulty; 5 With difficulty*; 6 With great difficulty*; 98-Don't know; 99-Refusal.

Table A4: Questions to build the Sub-Index of House Deprivation

3- House Deprivation			
Variables	**EQLS label (Dummy=1 if …)**	**Questions**	*** indicates the category associated to a deprivation status**
A1_Dep3 (Space)	*Y11_Q19a = 1*	Q19a Shortage of space / Do you have any of the following problems with your accommodation?	1-Yes*; 2-No; 98-Don't know; 99-Refusal.
A2_Dep3 (RotDoor)	*Y11_Q19b = 1*	Q19b Rot in windows, doors or floors / Do you have any of the following problems with your accommodation?	1-Yes*; 2-No; 98-Don't know; 99-Refusal.
A3_Dep3 (Damp)	*Y11_Q19c = 1*	Q19c Damp or leaks in walls or roof / Do you have any of the following problems with your accommodation?	1-Yes*; 2-No; 98-Don't know; 99-Refusal.
A4_Dep3 (Toilet)	*Y11_Q19d = 1*	Q19d Lack of indoor flushing toilet / Do you have any of the following problems with your accommodation?	1-Yes*; 2-No; 98-Don't know; 99-Refusal.
A5_Dep3 (Balcony)	*Y11_Q19f = 1*	Q19f Lack of place to sit outside (e.g. garden, balcony, terrace) / Do you have any of the following problems with your accommodation?	1-Yes*; 2-No; 98-Don't know; 99-Refusal.
A6_Dep3 (Leave)	*Y11_Q20 = 1, 2*	Q20 How likely or unlikely do you think it is that you will need to leave your accommodation within the next 6 months because you can no longer afford it? Is it…	1-Very likely*; 2-Quite likely*; 3-Quite unlikely; 4-Very unlikely; 98-Don’t know; 99-Refusal.
A7_Dep3 (Warm)	*Y11_Q59a = 2*	Q59a Keeping your home adequately warm For each of the following things on this card, can I just check whether your household can afford it if you want it?	1-Yes, can afford if want; 2-No, cannot afford it*; 98-Don't know; 99-Refusal.

Table A5: Questions to build the Sub-Indexes of Family, Health and Social Life Deprivation

4- Family Deprivation			
Variables	**EQLS label (Dummy=1 if …)**	**Questions**	*** indicates the category associated to a deprivation status**
A1_Dep4 (Status)	*Y11_Q31 = 2, 3*	Q31 Could I ask you about your current marital status?	1-Married or living with partner; 2-Separated or divorced and not living with partner*; 3-Widowed and not living with partner*; 4-Never married and not living with partner; 98-Don't know; 99-Refusal.
A2_Dep4 (Child)	*Y11_Q32 = 0*	Q32 How many children of your own do you have?	0-No child*; 1-Child; …; 10-10 children or more; 99- Refusal; 98-Unknown.
A3_Dep4 (FaceChild)	*Y11_Q33a = 3, 4, 5*	Q33a How often do you have direct face-to-face contact with any of your children living outside household?	1-Every day or almost every day; 2-At least once a week; 3-One to three times a month*; 4-Less often*; 5-Never*; 6-Don't have such relatives; 98-Don't know; 99-Refusal.
5- Health Deprivation			
A1_Dep5 (overall)	*Y11_Q42 = 4, 5*	Q42 In general, would you say your health is …	1-Very good; 2-Good; 3-Fair; 4-Bad*; 5-Very bad*; 98-Don't know: 99-Refusal.
A2_Dep5 (chronic)	*Y11_Q43 = 1*	Q43 Do you have any chronic (long-standing) physical or mental health problem, illness or disability?	1-Yes*; 2-No; 98-Don't know; 99-Refusal.
A3_Dep5 (daily_limit)	*Y11_Q44 = 1*	Q44 Are you limited in your daily activities by this physical or mental health problem, illness or disability?	1-Yes, severely*; 2-Yes, to some extent; 3-No; 98-Don't know; 99-Refusal.
6- Social Life Deprivation			
A1_Dep6 (out_society)	*Y11_Q29e = 1, 2*	Q29e I feel left out of society	1-Strongly agree*; 2-Agree*; 3-Neither agree nor disagree; 4-Disagree; 5-Strongly disagree; 98-Don't know; 99-Refusal.
A2_Dep6 (Lost)	*Y11_Q29f = 1, 2*	Q29f Life has become so complicated today that I almost can't find my way	1-Strongly agree*; 2-Agree*; 3-Neither agree nor disagree; 4-Disagree; 5-Strongly disagree; 98-Don't know; 99-Refusal.
A3_Dep6 (unrecogniz)	*Y11_Q29g = 1, 2*	Q29g I feel that the value of what I do is not recognized by others	1-Strongly agree*; 2-Agree*; 3-Neither agree nor disagree; 4-Disagree; 5-Strongly disagree; 98-Don't know; 99-Refusal.
A4_Dep6 (LookDown)	*Y11_Q29h = 1, 2*	Q29h Some people look down on me because of my job situation or income	1-Strongly agree*; 2-Agree*; 3-Neither agree nor disagree; 4-Disagree; 5-Strongly disagree; 98-Don't know; 99-Refusal.
A5_Dep6 (closeness)	*Y11_Q29i = 5, 6*	Q29i I feel close to people in the area where I live	1-Strongly agree; 2-Agree; 3-Neither agree nor disagree; 4-Disagree*; 5-Strongly disagree*; 98-Don't know; 99-Refusal.