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Gender and the Great Recession: Changes in labour supply in Spain

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Abstract

The focus of this paper is on the different effects of the Great Recession on the decision of women and men to participate or not in the labour market. The literature on the effects of economic crises on labour supply by gender is analyzed. In the applied part of the paper we test the two different hypotheses: the added-worker effect (AWE), showing a countercyclical behaviour of labour supply that implies an increase in individual labour supply in response to transitory shocks in his/her partner's earnings, and the procyclical discouraged-worker effect (DWE). Given the deep effect of the Great Recession on the Spanish labour market, the empirical part of this paper will focus on the analysis of Spanish labour supply by gender. We have estimated labour supply models for individuals aged 25 to 54 living in couples with or without children by gender by using the EU-SILC 2007 and 2011 micro data for Spain. The results of our analysis show evidence of AWE, much more significant for women whose labour supply increases by 21% when their partner is unemployed against a 0.7% increase experienced by men married to unemployed women. A relevant AWE has also been detected for women if the partner works part-time and is therefore more likely to be underemployed. By comparing the labour supply behaviours before and after the crisis we can see that the discouraging effect connected to higher regional unemployment rates lost significance in 2011 leaving the AWE to dominate the labour supply decision during the crisis for couples.

Keywords: Labour supply, Great Recession, Gender, added worker effect, discouraged worker effect
JEL codes: J22, J21, J16, J64

1. Introduction[1]

Women and men are affected in different ways by the effects of all political or economic circumstances, especially by the impacts of an economic crisis of such magnitude as this Great Recession. This is because women and men occupy a distinct position and, in most cases, an unbalanced and unequal access to economic resources, including employment, credit, land and other natural resources, time and work sharing, or to positions of power, particularly economical (Benería and Feldman, 1992; Elson, 1995, 2010; Floro, 1995; Floro and Benería, 2004, Antonopoulos, 2009; Gálvez and Torres, 2010; Pearson and Sweetman, 2011; Gálvez and Rodríguez-Modroño, 2012; Rodríguez-Modroño, 2011, 2012). Economic crises act over previous gender imbalances either accentuating or modifying them. One effect that underscores the literature is the recurring effect in crises of an intensification of work for women, including paid and unpaid work. For example, during the Great Depression of the 30s not only female employment increased, but also the household's provision of goods and services that were previously acquired in the market (Milkman, 1976). In fact, the intensification of women's work during crises, along with the more speedy recovery of male employment once the recession phase of the cycle is overcome are the two constants found by Gálvez and Rodríguez-Modroño (2012) in their historical analysis of economic crises.

In this paper, we analyze the different effects that this Great Recession has had on the decision of women and men to participate or not in the labour market. The economically active population ratio can generally be decomposed into a trend and a cyclical component. This last one can be of different sign: the added-worker effect (AWE), when labour supply behaviour is countercyclical since it implies an increase in a person's labor supply (hours worked or participation) in response to transitory shocks in his/her partner's earnings, or the discouraged-worker effect (DWE) when it is procyclical[2]. Women's decisions to enter the labour market have always been more sensitive than male ones to economic cycles (Lundberg, 1985; Tano, 1993) because of the traditional secondary nature of female labour and lower women's activity rates linked to their historical specialisation in unpaid domestic work (Sarasúa and Gálvez, 2003). It is therefore very difficult to grasp in all its complexity how the economic cycle affects the labour supply, without taking into account gender differences.

It should be noted that studies like Sabarwal et al. (2011) warn that the present economic crisis appears to be altering the predictions and gendered behaviours found in previous crises as a result of the previous increase in women's attachment to the workforce and the contraction in global demand. Therefore, in addition to studying the differences in the labour supply of women and men, we also analyze the differentiated effects by gender of the impact of the other partner's employment condition and individual and family characteristics such as income, age, level of education, children, regional differences in unemployment rates and availability of child care, so that we can

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[2] Early development of both theories can be found in Humphrey (1940); Long (1956) and Mincer (1966) for the DWE and Woytinsky (1940) and Long (1953) for the AWE.

contribute to the specific literature on AWE and DWE, and especially to the analysis of the specificities of this Great Recession by introducing a more complex gender approach. Therefore, we have chosen the country whose labour market appears to be the most severely hit by the crisis: the Spanish one with almost 6 million people unemployed and an unemployment rate of 26% at the end of 2012, as it has suffered the negative impacts of the international economic crisis together with a huge housing and mortgage crisis, which has led to a loss of 1,333.9 thousands of jobs in construction since its maximum in the second quarter of 2007 to 2012 Q3.

Moreover, the Spanish labour market has always been known to be more sensitive to the cycle than other labour markets of developed countries or the OECD, creating many jobs in times of expansion and destroying even more in times of recession (Bentolila et al., 2011). With a destruction of 3,445.2 thousand jobs in the last 5 years, Spanish unemployment rates have risen up to 26.55% for women and 25.58% for men in 2012 Q4 since its minimum level of 7.95% in 2007 Q2 (6.1% for men and 10.5% for women). The extreme and persistent fluctuations in the Spanish unemployment rates make it a particularly suitable study-case of the AWE and the DWE. In order to do so, we propose two probit models of labour supply by gender using the Spanish data from the EU SILC 2011, the EU Labour Force Survey and statistics on schooling services. The few existing studies regarding the effect of the Great Recession on the Spanish labour supply have not either analysed the added and discouraged worker effects by gender (Congregado et al., 2011), or have used more limited sets of data and analysis (Domingo, 2011).

The article is structured as follows. In section two, we discuss the empirical evidences found in previous studies supporting AWE or DWE, and the effects of economic crisis by gender. In section three, we analyse previous results for the Spanish case, as well as including some particularities regarding Spanish labour market and its institutional framework. In section four, we present the probit models used for the labour force supply as well as our data and descriptives. In section five, we discuss our main results. And finally, we include some conclusions and policy recommendations.

2. Crises, economic cycle and labour supply by gender

The literature about the gender effects of economic crises began to develop in the context of the 1970s, with the oil crisis and the scientific development of the gender approach. These early debates focused on the different impact of the crisis on employment of women and men[3]. These analyses focused on the appropriate use of the Marxist concept of "reserve army" to analyze the behaviour of women during periods of expansion and crisis (Benston, 1971; Mitchell, 1976). To its defenders, female labour supply would present a procyclical behavior due to the discouraged-worker effect (DWE), whereas other authors such as Bruegel (1979) or Rubery and Tarling (1982) pointed to a countercyclical behaviour due to the added-worker effect (AWE). Finally, another group of works stressed the importance of occupational segregation in explaining the differential impacts of crises on women and men (Milkman, 1976; Johnson, 1983; Miller, 1990).

[3] One exception was the work by Milkman (1976) which focused on the Great Depression of the 30s in the U.S., and also included an analysis of the impact of the crisis not only in paid work but also on the unpaid domestic work performed by women, noticing that this work “took up the slack” during the crisis and allowed for the survival of many families at the expense of the intensification of women’s work.

In more recent literature, and using more sophisticated econometric analysis, we may find ambiguous results regarding AWE and DWE, as well as support for the key role played by the occupational segregation. In fact, the vulnerability of different types of workers to economic downturns remains subject to considerable debate[4]. Despite the empirical evidence supporting both effects, on an aggregate and long-term basis, the DWE seems to be predominant, with little evidence supporting the added worker effect at least in developed countries[5] (Dernburg and Strand, 1966; Maloney, 1987, 1991; Dex et al., 1995; Spletzer, 1997; Addabbo, 1999; Cullen and Guber, 2000; Prieto and Rodríguez, 2003).

The degree of development of the countries and the timing of the impacts of the crises are important factors affecting the strength of both effects found in the studies. Signorelli et al. (2012) analyse the impact of past (1980-2005) financial crisis on female labour force participation and female unemployment in four types of countries: 20 high income economies (Spain among then); 10 upper middle-income economies; 20 lower middle-income economies; and 15 low income economies[6], concluding that unemployment and vulnerable employment for the weakest segments of the labour market, including women, persist for about 5 years after the crisis and the worst impact is found in the second and third year. According to this study, financial crises lead to a decline in female participation rate, and the effects are great (and the results more robust) in the case of high-income countries since in those countries women are working mainly in the formal sector.

Existing analysis of the Great Recession on men and women are also mixed. Studies mostly drawing on data from Europe and the US suggest that men suffered larger unemployment increases than women due to their concentration in banking and finance, export-oriented industry sector (Barakat et al., 2010; Elsby et al., 2010), or the buiding sector in the Spanish case. The research of Filatriau and Reynès (2012) for 12 OECD countries (Spain (1972-2006) among them), for the period varying from the 1970s and 1980s to 2006, shows that in general, the DWE dominates the AWE since an increase in the unemployment rate decreases the labour participation ratio. However, women between 25-54 living in Latin and European continental countries or in Japan are an exception. A one point increase in the unemployment rate leads to a 0.45 point-increase in their labour participation rate, suggesting that the AWE is predominant. Stephens (2002) and Kohara (2010) also find the AWE to be significant and important using panel data from US and Japan, respectively. The analysis of the impacts of the present recession on European countries of Arpaia and Curci (2010) and Bettio et al. (2012) shows evidence of the DWE for both sexes, but also the presence of the AWE for women.

Other studies regarding mid-income countries, provide further support for the AWE. Karaogland and Okten (2012) analysis on married women in the Turkish case for the

[4] For Cho and Newhouse (2013) different impacts across groups of people during a downturn can be explained by three aspects: first, differences in workers' initial exposure to the shock; second, firms' perceptions regarding worker productivity and labour market attachment; and third, workers' labour market behaviour in response to declines in household income.

[5] Following García (1991), that could be explained for three reasons: (i) sociological factors such as macho behaviour; (ii) selective marriage, being possible both members of the couple have the same labour problems (for Maloney (1991), this is the most important factor); and, (iii) the benefit system, when the value of the unemployment benefit received by the husband is linked to the wage received by his spouse (founding that this was the most important factor in the British case).

[6] For these authors, the adverse effect of crisis on unemployment disappears after 5 years subsequent to crisis.

period 2000-2010 shows that wives whose husbands experience a job loss are more likely to increase their labour force participation. However, a worsening of overall unemployment conditions appears to have a discouraging effect on wives' labour supply responses.

Cho and Newhouse (2013) analyse recent economic crisis effects on 17 middle countries labour markets, finding a mild AWE compared to past crises, even for the less educated women. The small added-worker effect suggests that the informal sector played a relatively small role as a buffer for the shock. In their study, a substantially larger share of men than women suffered adverse labour market impacts, partially because of men's higher pre-crisis employment levels and greater concentration in the hard-hit industrial sector (on average, the gender disparity in employment is largely explained by men's higher rates of initial employment roughly 56-8% and men's higher presence in the industrial sector). Their results show that disparities in employment adjustments between groups were sizeable, in comparison with overall employment declines. For all types of workers, falls in employment mainly led to increased unemployment rather than reduce participation, except for the young, remaining in or returning to school. While there are large variations across countries, in harder hit countries men tended to experience particularly large employment loss (Latvia, Lithuania, Turkey) while in mildly hit countries, women bore the brunt of falling employment (Indonesia, Jordan, Costa Rica).

For these authors, in many mid income countries a large share of working-aged women prior to the ongoing crisis were potential added workers. That happened also in Chile during the oil crisis of 1973, in Costa Rica in 1982 (Leslie et al., 1988), in Peru during the crisis of the 80s (Francke, 1992), in the Argentina's Corralito financial crisis (Pessino and Gill, 1997; Cerutti, 2000) or in the Mexican Tequila crisis (Skoufias and Parker, 2006). However, in Brazil there was a compensatory effect among poor women, who joined the workforce and women who were above the poverty line and were expelled from the labour market (Humphrey, 1996), and in the 2002 Argentinian crisis employment loss was comparable for men and women in urban Argentina (Mckenzie, 2004).

There is also evidence of the AWE during the 1997 Asian crisis. Layoffs had a marginally greater effect on men than women in Thailand and Malaysia (Nathan and Kelkar, 1999) and in the Indonesian and Philippines crises of the 90s (Smith et al., 2002) where employment fell markedly more for men than for women, as female workers were absorbed by the informal sector and more resilient large firms (Hallward-Driemeier et al., 2010). By contrast, in South Korea after the 1997 financial crisis, although the official unemployment rates were higher for men than for women (Lee, 2010), overall more women than men left the labor force (Kim and Voos, 2007; Aslanbeigui and Summerfield, 2000).

Therefore, though in global terms, it seems to dominate a greater participation of women in the labour market (AWE) during crises[7], there is a considerable heterogeneity in female responses in the labor market and a large number of women can withdraw from the labor force (DWE) during a recession depending on institutional factors, occupational segregation and the sectors mainly hit by the crisis, the stage of the crisis and policy responses, and variables such as education level, age, household income, etc.

[7] Bhalotra and Umaña-Aponte (2009) show that a 10 percent drop in a country's GDP is associated with an increase of 0.34 points in the participation of women in the workforce in the present economic crisis.

3. Crisis, economic cycle and labour supply by gender in Spain

The extreme and persistent fluctuations in the Spanish unemployment rate due to the Spanish overreaction to movements in GDP either in expansive and recessive phases (Dolado y Jimeno 1997; Toharia, 2003) make Spain a particularly suitable case to study AWE and DWE (Congregado et al., 2011). Spain is one of the countries most severely hit by this Great Recession in terms of the labour market behaviour, experiencing a massive rise in unemployment, which started already in June 2007 and combining an increased inflow rate in unemployment with a decreased outflow rate. In Spain, not only 1 in 4 labor force participants are projected to be unemployed through 2013; but also half of all young labor force participants are without jobs and more than 40 percent of those unemployed have been out of work for more than six months (IMF, 2012), worsening the employment perspective of an increase pool of unemployed, which raise concerns about long-term unemployment and risks of labour market detachment.

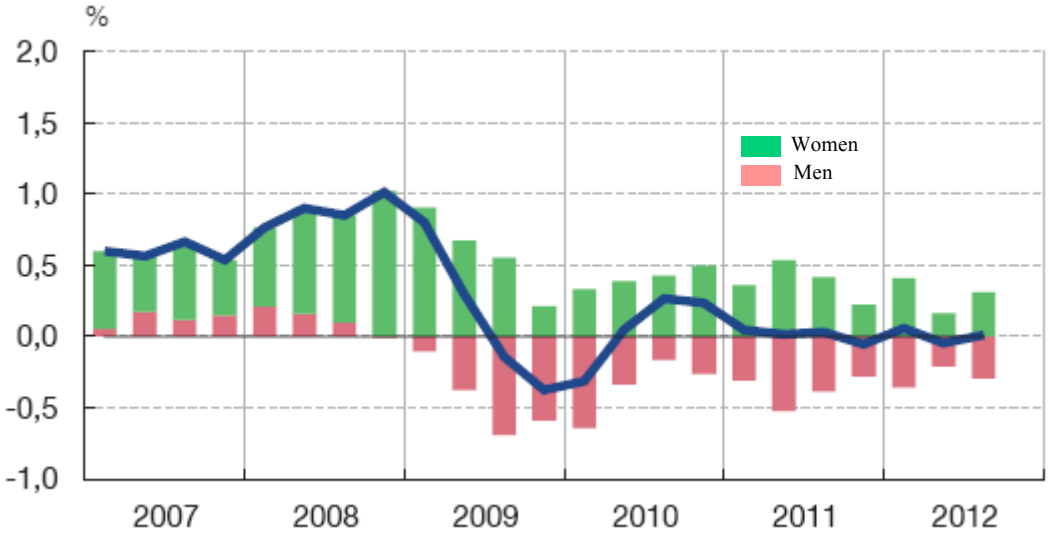
Since the onset of this Great Recession the number of unemployed persons is Spain has increased from around 2 millions at the end of 2007 to almost 6 millions in 2012 Q4. We can identify three stages in this huge unemployment increase (Banco de España, 2012): (i) since mid-2008 and during the first part of 2009, the unemployment grew extraordinarily, with entries of more than 500,000 persons in some quarters, mainly explained by the intensity of the job losses, especially for men; (ii) from the mid-2009 to mid-2011 a second phase began, characterized by a moderation in the growth of unemployment, derived from a less intense net job decline and less entries in the workforce and simmilar increases in unemployment rates for women and men; (iii) a third phase started at the third quarter of 2011, in which rising unemployment rebounded to around 200,000 persons per quarter and female unemployment is increasing at a faster rate in many quarters.

As we can see in Figure 1, at the first stage of the crisis inputs into unemployment increased greatly, mainly as a result of the intensity in the loss of jobs, mainly from men in the buiding and manufacturing sectors. In addition, entries into unemployment from inactivity also increased, showing a high AWE of women between 25 and 54 years old (Figure 2). In this first stage, there was no DWE as the flows from unemployment to inactivity showed a decreasing trend. In the second phase of the crisis, from mid-2009 outflows from employment to unemployment eased slightly, however entries from inactivity to unemployment remained a growing trend. In the third phase since mid-2011, we have seen a new increase in exits from employment to unemployment to levels higher than at the beginning of the crisis and a decline in output rates from unemployment. Already from the middle of the second phase, the AWE of women have been reduced though is still present and women's unemployment increased at similar rates than men's one due to the spread of the recession to all sectors as well as the effects of the severe fiscal consolidation in cuts in public services and actual downsizing of public employment.

Figure 1. Unemployment rates, interannual variations and weights by gender

Source: Bank of Spain and Spanish Statistical Institute.

Figure 2. Activity rates, interannual variations and weights by gender



Source: Bank of Spain and Spanish Statistical Institute.

Congregado et al. (2011) analyse the period 1976-2008, finding that AWE dominates only in Spain when unemployment is below 11.7%. Above this rate, the two effects cancelled each other. Since in 2009 unemployment was above 11.7%, they predicted no further increases in the participation rate in the near future. However, this has not been so for, the overall activity rate has continued increasing due to the rise of women's activity rate from 51% in 2009 Q1 to 53.4% in 2012 Q4.

Although women's entry in the Spanish labour market has being predominantly positive since the 80s due to its initial low levels and structural economic and demographic developments[8], there is also evidence that female participation responds to the business

[8] Bover and Arellano (1995) point out to technical changes in production, increased demand for skilled non-physical labour, development of regional administration, decline in the rate of fertility and women's increase in education; however, women's increase in labor supply also coincides with a decline in salaries and the encouraging of family debt.

cycle, since it was still dependent on their husbands' labour position. Prieto Rodríguez and Rodríguez Gutiérrez (2000) using a subsample of married women obtained from the Survey of structure, conscience and biography of class of the year 1991, find that women's labour force participation in Spain was still highly conditioned by their husbands' labour status at the time of the study, especially if their husbands are unemployed[9].

A recent study by Domingo (2011) using EPA 2010 Q4, finds a primacy of the AWE for Spanish women in the recent crisis with a positive effect for university studies, divorced or separated marital status and with other household adult members unemployed. While marital status married or widowed, young children, grandparents living in the household, partner with university studies and high unemployment had a negative sign.

Therefore, though the gender gaps in labour participation, employment and unemployment have been reduced since the onset of the crisis to -13.1, -10.27 and 0.97, respectively in 2012 Q4 because of the AWE for Spanish women and severe losses of jobs in male-dominated sectors mainly at the beginning of this recession, unemployment rates for women continue to be very high and may decline at a lower pace, due to the role of reserve labor of women and occupational segregation (Molto, 1993; Caceres et al., 2004), tolerance to female unemployment and exclusion (Torns, 1997) which still affect political responses to crises.

4. The model and data

In order to test the added versus the discouraged worker hypothesis we estimate individual's labour supply probability by using a Probit model (Section 5). The labour supply variable Y is a dichotomous variable taking the value of one if the individual is in the labour force. Amongst the regressors X we have included also the partner's employment status and assume that the model takes the form of:

$$Pr\,(Y = 1|X) \;=\; \Phi\,(X'\beta)$$

where Φ is the Cumulative Distribution Function of the standard normal distribution and β will be estimated by using maximum likelihood.

Amongst the regressors we include also the imputed wages. Wage equations have been estimated by using a Heckman two step model for women's wages to take into account the non random selection of women into employment (Heckman, 1979).

To estimate the labour supply model and the impact on one partner's of the other partner's employment condition we need a data set that contains individual and family characteristics and allows for regional statistical significance.

As shown in Table 1 and the literature on regional unemployment (Jimeno and Bentolila, 1998; Moral, 2005), the observed high regional variation in unemployment rates should lead to disaggregate by NUTS2 rather than NUTS1.

[9] For Prieto et al. (2000) mainly related to inactivity more than to unemployment.

Table 1. Regional unemployment rates in Spain, 2007 and 2011

NUTS1	NUTS2	Regions	2007			2011		
			Total Unemp	Men Unemp	Women Unemp	Total Unemp	Men Unemp	Women Unemp
ES1 NO	ES11	Galicia	7.64	5.72	10.06	17.41	16.64	18.29
	ES12	Asturias	8.48	6.42	11.10	17.86	18.25	17.41
	ES13	Cantabria	5.91	4.46	7.87	15.29	16.09	14.31
ES2 NE	ES21	País Vasco	6.12	4.80	7.83	12.01	11.34	12.77
	ES22	Navarra	4.76	3.18	6.94	12.94	12.36	13.63
	ES23	Rioja, La	5.66	3.88	8.29	17.01	16.30	17.87
	ES24	Aragón	5.24	3.7675	7.24	17.09	16.73	17.56
ES3 CM	ES30	Madrid	6.30	4.93	7.97	16.73	16.70	16.77
ES4 C	ES41	Castilla y León	7.18	4.76	10.64	16.74	15.35	18.50
	ES42	Castilla - La Mancha	7.61	5.03	11.79	22.92	20.60	26.12
	ES43	Extremadura	13.06	9.14	18.95	25.10	22.63	28.49
ES5 E	ES51	Cataluña	6.55	5.58	7.83	19.25	19.81	18.60
	ES52	Comunitat Valenciana	8.76	6.87	11.38	24.49	24.23	24.80
	ES53	Balears, Illes	7.03	5.86	8.61	21.96	22.40	21.45
ES6 S	ES61	Andalucía	12.76	9.48	17.61	30.39	28.88	32.33
	ES62	Murcia	7.56	6.00	9.98	25.40	25.26	25.61
	ES63	Ceuta	20.28	15.50	28.75	29.38	23.14	38.98
	ES64	Melilla	18.16	12.09	27.94	24.46	20.16	30.41
ES7 CA	ES70	Canarias	10.44	8.52	13.05	29.69	29.67	29.72

Source: Our elaborations on Survey on Active Population from the Spanish Statistical Institute.

According to the literature on labour supply a crucial role in allowing continuity in labour supply over the life cycle and in increasing women's labour supply is played by the availability of child care services. There is a great degree of regional disparity in the degree of coverage of childcare services by region especially in the 0-2 age group as shown in Table 2. Again the data show the need of disaggregating by NUTS2.

Table 2. Degree of coverage of child care services by regions on 0-2 years old and 0-5 years old children living in the region, academic courses 2006-07 and 2010-11

NUTS1	NUTS2	Name of the region	2006-07		2010-11	
			School 0-2	School 0-5	School 0-2	School 0-5
ES1 NO	ES11	Galicia	16.94	57.73	21.80	60.63
	ES12	Asturias	8.78	53.16	14.04	57.99
	ES13	Cantabria	16.80	57.26	22.98	61.12
ES2 NE	ES21	País Vasco	48.79	74.37	53.50	78.25
	ES22	Navarra	25.70	62.02	9.00	53.63
	ES23	Rioja, La	4.82	51.72	10.96	54.70
	ES24	Aragón	30.14	64.58	31.81	65.89
ES3 CM	ES30	Madrid	32.09	61.07	41.66	67.16
ES4 C	ES41	Castilla y León	12.25	56.72	14.04	57.40
	ES42	Castilla - La Mancha	2.60	54.31	34.01	68.93
	ES43	Extremadura	2.82	51.36	3.35	51.82
ES5 E	ES51	Cataluña	32.02	63.74	34.30	66.30
	ES52	Comunitat Valenciana	12.22	52.98	21.83	58.77
	ES53	Balears, Illes	10.36	49.75	19.41	55.25
ES6 S	ES61	Andalucía	4.06	50.75	29.66	64.99
	ES62	Murcia	15.65	56.36	16.73	56.34
	ES63	Ceuta	4.29	52.31	4.34	55.66
	ES64	Melilla	15.50	55.45	14.53	53.63
ES7 CA	ES70	Canarias	0.00	46.84	7.65	51.13

Source: Our elaborations on educational data from the Spanish Statiscal Institute.

The Spanish components of the EU Surveys on Income and Living Conditions[10] (EU-SILC) run in 2007 and 2011 provide us with information on individual employment condition and on the sociodemographic composition of her household and has been used to estimate the models (Section 5) and to carry out descriptive analysis in this Section.

Foe EU-SILC 2011, we get a sample of married individuals aged from 25 to 54 made up of 4,712 women and 4,135 men aged on average 42. Women are characterized by a lower labour force participation and employment rates than men in the sample (Table 3). Their unemployment rate is 20% on average in 2011 against 15% for men. Women in the sample are more likely to have a degree than men (35% against 29%) and more likely to be chronically ill (14% against 12% for men). As far as the children in the household is concerned about 12% have at least one child aged less than 3.18% from 3 to 5.27% from 6 to 10 and 18% from 11 to 14. The literature on labour supply shows the existence of a discouragement effect on mothers of the presence of small children on women's labour supply. The presence of child care services can mitigate the negative effect of young children on their mothers' labour supply. Child-care services are not equally distributed across regions in Spain (as shown above) and to take this difference into account we have considered the diffusion of child care services to children aged less than 2 in the model whose estimation will be presented in the following Section. We have then added the regional unemployment rates by gender to take into account the

[10] EU-SILC microdata for Spain can be obtained from the Spanish Statistical Institute at http://www.ine.es/prodyser/micro_ecv.htm.

regional heterogeneity in the labour market outlined above. Comparing 2011 and 2007 data we can see the increase in the average unemployment rates and how the gap between women and men unemployment rates in this age group and married status did decrease from 8 to 5 percentage points (Table 3).

Table 3. Descriptive statistics on the sample

Variables	2007				2011			
	Women		Men		Women		Men	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Age	41.23	7.44	42.11	7.23	41.80	7.41	42.71	6.99
Wage	4.03	5.23	6.54	5.43	4.44	6.66	6.14	5.83
At least one child in the household aged less than 3	0.13	0.33	0.14	0.35	0.12	0.33	0.13	0.34
At least one child in the household aged 3-5	0.17	0.37	0.18	0.39	0.18	0.39	0.20	0.40
At least one child in the household aged 6-10	0.24	0.43	0.26	0.44	0.27	0.44	0.28	0.45
At least one child in the household aged 11-14	0.18	0.39	0.19	0.40	0.18	0.39	0.19	0.39
Elementary	0.18	0.38	0.18	0.39	0.13	0.34	0.14	0.35
Secondary	0.26	0.44	0.27	0.44	0.26	0.44	0.30	0.46
High school	0.24	0.43	0.24	0.43	0.24	0.43	0.25	0.43
degree	0.31	0.46	0.30	0.46	0.35	0.48	0.29	0.46
Labour force rate	0.69	0.46	0.98	0.15	0.74	0.44	0.97	0.18
Employment rate	0.60	0.49	0.93	0.26	0.59	0.49	0.83	0.38
Unemployed rate (on the Labour force)	0.12	0.33	0.04	0.20	0.20	0.40	0.15	0.35
Chronic ill	0.16	0.37	0.16	0.36	0.14	0.35	0.12	0.33
Number of observations	4,888		4,355		4,712		4,135	

Source: Our elaborations on Spain EU-SILC data 2007 and 2011.

Turning to those who are employed married women in our sample appear to be more concentrated in part-time jobs than men, in fact 20% of them are part-timers against 1.58% of employed men in the sample. If one looks at the reasons part-timers state for working part-time though underemployment is highly spread amongst both men and women, the known gender difference occurs with married women more likely to work part-time for family reasons (housework, looking after children or other persons, 42%) and men more likely to be working part-time because they have not found a full-time job (68%). Comparison with 2007 data on the reasons for working part-time shows the massive increase in underemployment. Being underemployed was a reason given by 15% of men working part-time in 2007 and in 2011 is 68%, underemployment interested 17% of women part-timers in 2007 and 38% of women in part-time work in 2011 (see Table A1 in the Appendix).

5. Labour supply models estimation results

To test the added versus discouraged worker hypotheses we have included in the model together with variables on education level, age and the presence of children aged less

than 15, and health status, variables that account for the partner's employment status and regional unemployment rates.

Consistently with the literature on labour supply, women's labour supply shows to be positively related to their own imputed wage: a one percent increase in their wage increases by 5 percent points their probability to participate in the labour market[11]. The higher is the other income of the family the lower is women's participation though the effect is not significant.

Women's labour supply appears to be more discouraged than men's from the presence of children in the different age group the highest negative effect is to be found when there are children aged from 3 to 5: having at least one child in this age group is found to decrease mothers' labour supply probability by 13% and having a child aged less than 3 decreases mothers' labour supply probability by 10%. This lower negative effect of having a child aged less than 3 years can be related to the improvements in maternity protection and parental leave in the Spanish Workers' Statute[12] and the implementation of the 3/2007 Law for Effective Equality of Men and Women (dated 22 March, 2007). This Equality Law incorporates express provisions on the maintenance of equal rights in the employment conditions of workers enjoying maternity leave benefits and establishes paternity leave[13] as a new form of employment contract suspension.

Married women's labour supply is also more positively affected by higher education, having a degree or high school increases the labour supply probability by 11% for women and by 1% for men.

On the other hand, having a chronic illness is found to have a similar discouraging effect individual's labour supply (about 9%).

Turning to the test on added and discouraging worker effect that is at the heart of this study our results show that higher women's regional unemployment rates discourage women's participation though the effect is not significant. We found evidence of a strong added worker effect for women: the presence of an unemployed husband increases by 21% the participation probability of women. An added worker effect appears also when the partner works part-time (increasing by 27% women's participation) and, to a lower extent, if he is self-employed (+9%).

An added worker effect appears to occur also for male but to a much lower extent than for women: men's labour supply increases by 0.7% if his partner is unemployed. Similarly lower are the effects of having a partner working part-time (this increases men's labour supply probability by 0.9%) or and to a similar extent when the partner is

[11] Wage equations have been estimated to impute wages to those who are not employed by using Heckman two-step method to account for the non-random selection of Spanish women to employment. Table A2 in the Appendix shows the results of the estimation for 2011 and Table A3 for 2007.

[12] The Workers' Statute states that a dismissal without cause is void in relation to: any employee who is on maternity leave, paternity leave, at risk or ill during pregnancy or breastfeeding leave, a pregnant woman, irrespective of whether the employer is aware of the pregnancy; any employee after maternity or paternity leave, during the nine months following the date of birth, adoption or fostering; any employee who has reduced their working hours to look after a child, disabled person or relative; and any employee taking a period of leave in order to look after a child, a disabled person or a relative. The legal consequence of the dismissal being void is that the employee has a right to be reinstated to his/her previous role, on the same terms and conditions.

[13] Though the Equality Law created a non transferable paternity leave of 13 days, the economic crisis has counteracted this new right and the number of fathers taking the paternity leave has not increased since 2009. Also, the extension in the paternity leave to 4 weeks that was to be implemented in 2011 has been postponed by the government every year.

self-employed (0.8%). Men show the prevalence of other income effect (an increase in other family income is found to decrease by 1% their participation probability) and a low and not significant elasticity to their own wage.

In order to test our results on the added and discouraged worker effect with regards to the cycle we have estimated the same model by gender before the crisis started to hit, on 2007 EU SILC data. The results are shown in Table 5. The most striking difference concerns the size and significance of the specific unemployment rates coefficients that turn out to be significantly discouraging women's and men's labour supply. A one percent increase in women's specific regional unemployment rates decreases women's labour supply by 64 percentage points while men's regional unemployment rates are found to reduce men's labour supply to a much less extent (by 11%).

Table 4. Probit models on the labour supply probability women and men living in couples 25-54 years old - coefficients and marginal effects evaluated at the sample mean, 2011

Variables	Coefficients		Marginals	
	Women	Men	Women	Men
Age	0,038	0.00981	0,0108	0.000193
	(0.0459)	(0.112)	(0.0130)	(0.00222)
Age squared	-0.00102*	-0.000589	-0.000287*	-1.16e-05
	(0.000547)	(0.00128)	(0.000154)	(2.66e-05)
Other member of the family equivalent income	-0.0450	-0.516***	-0.0127	-0.0102***
	(0.0390)	(0.116)	(0.0110)	(0.00215)
Imputed wage	0.182***	0,0604	0.0515***	0.00119
	(0.0244)	(0.0733)	(0.00685)	(0.00152)
At least one child in the household aged less than 3	-0.327***	-0.0229	-0.101***	-0.000461
	(0.0993)	(0.249)	(0.0330)	(0.00513)
At least one child in the household aged 3-5	-0.418***	-0.00676	-0.130***	-0.000134
	(0.0792)	(0.200)	(0.0265)	(0.00399)
At least one child in the household aged 6-10	-0.330***	-0.264*	-0.0988***	-0.00612
	(0.0665)	(0.148)	(0.0208)	(0.00394)
At least one child in the household aged 11-14	-0.221***	0,0204	-0.0660***	0.000396
	(0.0710)	(0.154)	(0.0221)	(0.00294)
Upper education (high school or degree)	0.362***	0.642***	0.105***	0.0146**
	(0.0839)	(0.219)	(0.0247)	(0.00602)
Chronic ill	-0.315***	-1.313***	-0.0968***	-0.0917***
	(0.0732)	(0.113)	(0.0241)	(0.0187)
Partner unemployed	0.942***	0.473***	0.212***	0.00737***
	(0.0738)	(0.149)	(0.0131)	(0.00282)
Regional Specific unemployed rate	-0.639	-0.640	-0.181	-0.0126
	(0.459)	(1.094)	(0.129)	(0.0212)
Partner part-timer	1.794***	0.769***	0.268***	0.00875***
	(0.166)	(0.216)	(0.0101)	(0.00299)
Partner self employed	0.365***	0.617***	0.0925***	0.00804***
	(0.0726)	(0.150)	(0.0165)	(0.00269)
Constant	-0.132	6.703**		
	(1,005)	(2.984)		

Observations	4,494	3,303	4,494	3,303
Robust standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				
Pseudo R^2	0,21	0,34		

Source: Our elaborations on Spain EU SILC data 2011.

Table 5. Probit models on the labour supply probability women and men living in couples 25-54 years old - coefficients and marginal effects evaluated at the sample mean, 2007

Variables	Coefficients		Marginals	
	Women	Men	Women	Men
Age	-0.116**	0.212*	-0.0358**	0.00207*
	(0.0476)	(0.115)	(0.0147)	(0.00117)
Age squared	0.000705	-0.00233*	0.000218	-2.28e-05*
	(0.000567)	(0.00135)	(0.000175)	(1.37e-05)
Other member of the family equivalent income	-0.201***	-0.488***	-0.0621***	-0.00478***
	(0.0494)	(0.107)	(0.0151)	(0.00141)
Imputed wage	0.230***	-0.138*	0.0710***	-0.00136
	(0.0321)	(0.0834)	(0.00977)	(0.000918)
At least one child in the household aged less than 3	-0.689***	0,373	-0.243***	0.00262
	(0.0994)	(0.306)	(0.0381)	(0.00169)
At least one child in the household aged 3-5	-0.305***	0,077	-0.100***	0.000699
	(0.0759)	(0.201)	(0.0262)	(0.00178)
At least one child in the household aged 6-10	-0.277***	-0.192	-0.0895***	-0.00218
	(0.0637)	(0.162)	(0.0211)	(0.00222)
At least one child in the household aged 11-14	-0.174***	-0.337**	-0.0558**	-0.00451
	(0.0673)	(0.164)	(0.0222)	(0.00279)
Upper education (high school or degree)	0,11	0.987***	0,035	0.0135*
	(0.111)	(0.312)	(0.0343)	(0.00705)
Chronic ill	-0.283***	-1.519***	-0.0928***	-0.0706***
	(0.0703)	(0.157)	(0.0245)	(0.0140)
Partner unemployed	1.400***	0,03	0.263***	0.000264
	(0.102)	(0.186)	(0.0119)	(0.00172)
Regional Specific unemployed rate	-2.063***	-11.13***	-0.637***	-0.109**
	(0.734)	-3.307	(0.227)	(0.0474)
Partner part-timer	2.080***	0.373*	0.332***	0.00269*
	(0.152)	(0.222)	(0.0106)	(0.00143)
Partner self employed	0.00105	0,17	0.000326	0.00146
	(0.0648)	(0.172)	(0.0200)	(0.00153)
Constant	4.542***	3.810		
	(1,05)	(2,398)		
Observations	4,765	3,325	4,765	3,325
Robust standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

Pseudo R^2	0.2430	0.36

Source: Our elaborations on Spain EU SILC data 2007.

In order to test the effect of the presence of childcare services on labour supply we have tested the labour supply model by gender in couples with at least one child aged less than 15 (the marginal effects evaluated at the variables sample means are shown in Table 6). The presence of regional childcare services for children aged less than 2 significantly affects mothers' labour supply by increasing the probability of labour supply by 14% for a 1% increase in coverage whereas they do not significantly affect fathers' labour supply in 2011, the effect was positive but not significant in 2007 (Table 7).

Table 6. Probit models on the labour supply probability women and men living in couples 25-54 years old with at least one child aged less than 15. Marginal effect evaluated at the sample mean, 2011

Variables	Coefficients		Marginals	
	Women	Men	Women	Men
Age	0.148**	0,077	0.0399**	0.000961
	(0.0697)	(0.155)	(0.0188)	(0.00208)
Age squared	-0.00228***	-0.00144	-0.000614***	-1.81e-05
	(0.000869)	(0.00182)	(0.000234)	(2.56e-05)
Other member of the family equivalent income	0.00843	-0.432***	0.00227	-0.00541***
	(0.0546)	(0.128)	(0.0147)	(0.00181)
Imputed wage	0.158***	0,042	0.0425***	0.000529
	(0.0323)	(0.115)	(0.00860)	(0.00153)
At least one child in the household aged less than 3	-0.376***	-0.0467	-0.111***	-0.000603
	(0.119)	(0.287)	(0.0375)	(0.00392)
At least one child in the household aged 3-5	-0.490***	0,022	-0.141***	0.000274
	(0.0981)	(0.266)	(0.0299)	(0.00326)
At least one child in the household aged 6-10	-0.437***	-0.234	-0.118***	-0.00306
	(0.0888)	(0.174)	(0.0241)	(0.00260)
At least one child in the household aged 11-14	-0.353***	0,084	-0.0999***	0.00101
	(0.102)	(0.244)	(0.0302)	(0.00278)
Upper education (high school or degree)	0.468***	0.818**	0.133***	0.0135*
	(0.115)	(0.362)	(0.0343)	(0.00724)
Chronic ill	-0.253**	-1.375***	-0.0742**	-0.0752***
	(0.112)	(0.172)	(0.0351)	(0.0238)
Partner unemployed	1.044***	0.436**	0.217***	0.00434*
	(0.103)	(0.184)	(0.0166)	(0.00262)
Regional Specific unemployed rate	0,168	0.617	0,045	0.00773
	(0.645)	(1.627)	(0.174)	(0.0212)
Partner part-timer	1.885***	0.856**	0.271***	0.00621**
	(0.185)	(0.336)	(0.0134)	(0.00314)
Partner self employed	0.356***	1.048***	0.0861***	0.00708**
	(0.0982)	(0.292)	(0.0213)	(0.00333)
Regional child care 0-2 rates	0.525*	0,240	0.142*	0.00301
	(0.314)	(0.642)	(0.0840)	(0.00791)

Constant	-3.032**	4.370
	(1.452)	(3.793)
Observations	2.506	1.972
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		
Pseudo R^2	0.22	0.35

Source: Our elaborations on Spain EU SILC data 2011.

Table 7. Probit models on the labour supply probability women and men living in couples 25-54 years old with at least one child aged less than 15. Marginal effect evaluated at the sample mean, 2007

Variables	Coefficients		Marginals	
	Women	Men	Women	Men
Age	-0.0545	0.472***	-0.0166	0.00220
	(0.0715)	(0.154)	(0.0218)	(0.00138)
Age squared	0.000164	-0.00562***	5.00e-05	-2.62e-05
	(0.000896)	(0.00181)	(0.000272)	(1.63e-05)
Other member of the family equivalent income	-0.135**	-0.524***	-0.0411**	-0.00244**
	(0.0637)	(0.155)	(0.0192)	(0.00119)
Imputed wage	0.246***	-0.0417	0.0747***	-0.000194
	(0.0385)	(0.112)	(0.0116)	(0.000551)
At least one child in the household aged less than 3	-0.478***	0,499	-0.157***	0.00176
	(0.111)	(0.382)	(0.0388)	(0.00131)
At least one child in the household aged 3-5	-0.164*	0,101	-0.0510*	0.000446
	(0.0959)	(0.290)	(0.0301)	(0.00123)
At least one child in the household aged 6-10	-0.169*	-0.218	-0.0517*	-0.00107
	(0.0888)	(0.210)	(0.0268)	(0.00129)
At least one child in the household aged 11-14	-0.107	-0.255	-0.0330	-0.00137
	(0.0972)	(0.260)	(0.0301)	(0.00172)
Upper education (high school or degree)	0,099	0.898**	0,03	0.00641
	(0.138)	(0.397)	(0.0425)	(0.00549)
Chronic ill	-0.262***	-1.716***	-0.0849**	-0.0623***
	(0.0966)	(0.187)	(0.0331)	(0.0186)
Partner unemployed	1.438***	0.424*	0.266***	0.00132
	(0.130)	(0.243)	(0.0157)	(0.000953)
Regional Specific unemployed rate	-1.262	-6.749	-0.384	-0.0314
	(1.262)	(5.164)	(0.384)	(0.0269)
Partner part-timer	2.212***	0,313	0.351***	0.00113
	(0.174)	(0.313)	(0.0144)	(0.000887)
Partner self employed	0.00428	0,175	0.00130	0.000715
	(0.0828)	(0.238)	(0.0251)	(0.000960)
Regional child care 0-2 rates	0,37	-0.288	0,113	-0.00134
	(0.404)	(0.950)	(0.122)	(0.00447)
Constant	1.957	-1.941		

	(1.459)	(3.271)
Observations	2,647	1,939
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		
Pseudo R^2	0,25	0,44

Source: Our elaborations on Spain EU SILC data 2007.

6. Conclusions and policy implications

The crisis has deeply hit the Spanish labour market increasing unemployment, inequality and poverty. There has been a dramatic rise in the unemployment rate from 8% in 2007 to 26% in 2012 Q4, EU-SILC data shows that social inequality as measured by the Gini coefficient of equivalised disposable income increased from 31.3 in 2008 to 34 in 2011 (EU27 average is 30.7), and 22% of the population in Spain in 2011 were at-risk-of-poverty after social transfers (19.7% in 2007), compared to 17% in EU27.

This paper aims at analysing the effect of the crisis with the sharp increase in unemployment rates to labour supply within the family. For this purpose we have used the EU-SILC 2007 and 2011 micro data for Spain and estimated labour supply models for individuals aged 25 to 54 living in couples with or without children by gender. The results of our analysis show evidence of AWE, much more significant for women whose labour supply increases by 21% when their partner is unemployed against a 0.7% increase experienced by men married to unemployed women. A relevant AWE is also to be found for women if the partner works part-time and is therefore more likely to be underemployed (as shown in Section 5). The latter increases women's participation rate by 27% and men's by 0.9%. We can observe a change in the labour supply behaviour during this Great Recession. By comparing the labour supply behaviour before the crisis we can see that the discouraging effect connected to higher regional unemployment rates lost significance in 2011 leaving the AWE to dominate the labour supply decision during the crisis for couples.

This labour supply behaviour in presence of joblessnes or underemployment in the household should reduce the household's income loss connected to the crisis. However, the larger reaction shown by women to their partner joblessnes or underemployment during the crisis may not translate into a higher employment rate. Actually a high gender gap in employment rates occurs as shown by descriptive analysis and higher unemployment rates could be anticipated to characterize this group of the population following Signorelli et al. (2012) results. Moreover, if 'inactive' women step into the labour force to be unemployed this added worker effect does pose the question on how the welfare system can protect their income since they are also more likely to come from out of the labour force than their partners.

It also brings to the forefront the question on how active labour market policies adapt to women's entry into the group of jobless searching for a job. One should not forget that even when they are in the labour force with their partner unemployed, women are more likely to be the most responsible for care and housework, especially in Mediterranean countries (Gálvez, Rodríguez and Domínguez, 2011) and, though a gender equality oriented public policy should try to impact on this gender unbalance in the distribution of time within the family, the current situation shows the persistence of it. According to the Spanish Time Use Survey 2010, an unemployed Spanish man only increases in one

hour per day his time devoted to domestic and care work when he loses his job and becomes unemployed (from 2h 21'to 3h 23'), whereas a Spanish woman increases her time in almost two hours (from 3h 46' when she is employed to 5h 35' when she is unemployed). This unequal time allocation should be taken into account when devising the schedule of training courses and in the process of providing counselling in job search.

Women have always suffered from worse working conditions and lower opportunies in the Spanish labour market, and there are hardening with the current crisis. Female unemployment and long-term unemployment rates have risen dramatically in Spain. Spanish female long-term unemployment rate has increased from 2.5 in 2007 to 9.5 in 2011. Also, Spanish women are much more likely to be in part-time jobs than men (23.5% of women employed were part-time workers in 2011 in contrast to just 6% of men) and in underemployed part-time jobs (8% of active population are underemployed part-time female workers compared to 2% of men in Spain or to 5.3 of females in EU27 in 2011). According to the Spanish Wage Structure Survey, 69.5 % of women's workers earn just the minimum wage or less which means a maximum of 8,400 € a year, compared to only 30.4 of men in 2010.

These gender inequalities in the Spanish labour market lead to high gender differences in pensions and to a high risk of poverty for elderly women. Retired Spanish women earn as an average a monthly pension of 652.07 € compared to 1,057.36 € for men[14] and women represent 81% of people that receive a non-contributory pension which amounts to only 364.90 € per month[15]. The recent reform in the Spanish pension system will affect women even hardly, by increasing the retirement age, the minimum years required to get 100% of the pension and the period to compute the pension.

Both insights should call for more investment in labour market and welfare policies to avoid a deepening of income inequalities and discontinuity in female labour supply.

Another importat result reached by our focus on households with at least one child aged less than 14 is related to the positive impact of the presence of child care services on women's labour supply. This positive and significant effect of the presence of childcare services on mothers' labour supply suggests a higher effort on the diffusion of childcare services to increase female labour supply. Therefore, having the target to reduce income inequality and to ensure increase in female labour supply no cut in social expenditure devoted to child care should take place.

However, we can see that fiscal consolidation in Spain is focusing on the public sector and social services, not only reducing the quantity and quality of women's jobs but also hampering women's opportunities to supply their labour in the same terms as men. Though the specific impact of the recession cannot yet be gleaned from time use data, the fall in expenditure for routine maintenance goods and services, care services, and meals has been sufficiently pronounced to support the hypothesis that unpaid women's work primarily contributed to offset lower purchases (Bettio et al., 2012). This increase in unpaid work of women, as in in other crises throughout history (Harcourt, 2009), may offset the recent positive trend for unpaid work to fall and be better redistributed among the sexes that we have seen in the last decade[16].

[14] Data at January 1st, 2013 from the Spanish Social Security.
[15] Data from Imserso for December 2012.
[16] The studies of Ajenjo and García (2012) and Domínguez (2012) on the tendency in the distribution of unpaid domestic and care work in Spain since TUS 2002-03 to 2009-10 (the years of the two Time Use

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Appendix

Table A1. Reasons to work part-time by gender, 2007 and 2011

Reasons to work part-time	2007		2011	
	M	W	M	W
Education	2,79	0,91	0	0,7
Illness disab	27,12	1,2	1,67	1,34
Underemployed	14,73	17,29	67,95	37,94
Voluntary	0	11,44	2,66	6,7
Housework	26,25	57,61	12,16	42,48
Other reasons	29,12	11,55	15,55	10,83
Total	**100**	**100**	**100**	**100**

Source: Our elaborations on Spain EU-SILC data 2007 and 2011.

Table A2. Wage equations by gender - individuals aged 25-54, 2011

Variables	Women		Men
	Log Wage	Employment	Log Wage
Age	0.0347*	0,182	0,085
	(0.0179)	(0.0398)	(0.0185)
Age squared	-0.000286	-0.000435	-1.23e-05
	(0.000216)	(0.000480)	(0.000220)
At least one child in the household aged less than 3		-0.0377	
		(0.0874)	
At least one child in the household aged 3-5		-0.123*	
		(0.0741)	
At least one child in the household aged 6-10		-0.144**	
		(0.0597)	
At least one child in the household aged 11-14		-0.0866	
		(0.0622)	
High school	0.166***	0.384***	0.153***
	(0.0411)	(0.0599)	(0.0295)
degree	0.563***	0.848***	0.417***
	(0.0699)	(0.0568)	(0.0254)
chronic ill		-0.200***	
		(0.0678)	
Specific regional unemployment rates	-0.637*	-3.229***	-0.668***
	(0.329)	(0.392)	(0.233)
Constant	0.947**	0,091	1.624***
	(0.370)	(0.809)	(0.387)
Observations	4,634	4,634	2,563
Robust standard errors in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			
Heckman lambda	0,023		

Source: Our elaborations on Spain EU-SILC data 2011.

Table A3. Wage equations by gender - individuals aged 25-54, 2007

Variables	Women		Men
	Log Wage	Employment	Log Wage
Age	0,059	0,03	0.0452**
	(0.0400)	(0.0415)	(0.0207)
Age squared	-0.000534	-0.000735	-0.000397
	(0.000473)	(0.000507)	(0.000247)
At least one child in the household aged less than 3		-0.684***	
		(0.0905)	
At least one child in the household aged 3-5		-0.263***	
		(0.0685)	
At least one child in the household aged 6-10		-0.248***	
		(0.0584)	
At least one child in the household aged 11-14		-0.0946	
		(0.0613)	
High school	0.322***	0.469***	0.181***
	(0.0385)	(0.0604)	(0.0285)
degree	0.640***	1.088***	0.448***
	(0.0375)	(0.0644)	(0.0274)
chronic ill		-0.357***	
		(0.0655)	
Specific regional unemployment rates	-1.469***	-4.696***	-1.578***
	(0.463)	(0.648)	(0.566)
Constant	0,15	0,49	0.775*
	(0.851)	(0.824)	(0.422)
Observations	4,508	4,508	3,177
Robust standard errors in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			
Heckman lambda	0,130		

Source: Our elaborations on Spain EU-SILC data 2007.

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