DRAFT VERSION: FINAL PAPER COMING SOON

EMPLOYMENT DYNAMICS INSIDE NATIVES' AND IMMIGRANTS' HOUSEHOLDS IN SPAIN DURING EXPANSION AND CRISIS PERIODS: THE ADDED WORKER EFFECT

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In this paper, we aim at studying dynamic behaviours regarding female labor supply from a household perspective. Concretely, we analyze the transitions into labor force among those women whose partners lost their jobs in Spain, focusing in the differences among natives and immigrant groups. This process is studied in two different economic moments: the prosperity scenario from 2004 to 2007 and the economic crisis between 2008 and 2011. We use the Spanish Labor Force Survey data in its panel version to elaborate random-intercept logistic regression models. Our results show that exist an added worker effect in Spain and that this effect is significantly greater during the recession period. Furthermore, consistent with our expectations, we find that immigrant women are more likely to commence or seek work due to their partners' unemployment than native women. Nonetheless, important differences among origins were found. Finally, other characteristics as length of husband's unemployment or unemployment benefits don't have strong influences for women to enter to the labor market.

1. INTRODUCTION

The study of the labor market participation dynamics among couples is a trendy issue in times of economic crisis. With economic constrains among individuals, new benchmarks in terms of job loss, unemployment rates, length of time unemployed (Mattingly and Smith, 2010) as well as household strategies to overcome the crisis and the roles of men and women are settled. It is well documented that different sectors of the population are affected in different ways by economic crisis. For instance, youth (Bell and Blunchflower, 2011; Vaughan-Whitehead, 2011), low-skilled workers (Oesch, 2010), men (Smith, 2009) and immigrants (Wheatley-Price, 2010) are the most vulnerable ones in terms of unemployment risks in comparison to middle-aged, high skilled workers, women and natives in the majority of countries. There is also an extended literature on strategies to face unemployment from a household perspective considering the whole population. Nonetheless, much less is known about those responses among immigrants, particularly when different economic periods are considered. Moreover, it is not clear whether the world economic crisis is actually interfering in the probability of women entering into the labor market once their partners lose their jobs in Europe. What is clear is that the labor market participation of women has increased as a whole but there is no evidence on whether or not it could be considered an added worker effect. The only study found that compares prosperity and crisis periods refers to the United States. Without considering immigrants, its results show an important effect of the financial crisis in raising the risks of women to enter into the labor force as a response to unemployment among their partners (Mattingly and Smith, 2010).

Spain is a unique country in the European context to analyze the transition into labor force among native and immigrant women whose partners lost their jobs for many reasons. Firstly, the country has been strongly affected by the global economic crisis since the year 2008, just after an important period of economic boom, and the amount of job looses has been dramatic from that year. Effectively, the overall unemployment rates increased from 8.9% in the 3rd quarter of 2007 to 22.3% the 3rd quarter of 2011, and most of the recent job looses affected to men, and particularly to immigrant men. In fact, whereas native female employment decreased the -4,5% and immigrant female employment dropped the -0,2%, the reduction in the male employment was more evident: -16'5% for natives and -19,6% for immigrants (Domingo and Vidal-Coso, 2012). In this scenario, the economic resources of many families in Spain are deeply damaged and, as a consequence, many inactive women may find strategic to enter the labor force, increasing their role as economic providers. Concretely, from 2007 to 2011 there has been an increase of 7,7% in the labor force participation of native women in Spain and the increase for immigrant women has been even higher, the 21,4%. We argue that this growth in the female participation is partly an unanticipated consequence of the recession, in terms of an increased number of families, particularly immigrant families, which are relying on wives' wages.

Secondly, to understand women's labor force participation patterns is, in the Spanish case, a central task. In fact, although the labor behaviour of women has changed noticeably in recent years and female participation rates increased from 33% in 1976 to 62% in 2008, just prior the beginning of the crisis, the low participation of women in Spain is particularly relevant when compared to other European countries and it is partly attributed to the familistic nature of its Welfare State (Esping-Andersen, 1990 and 1999) and to the low levels of institutional support to conciliate work and family spheres of life (González, 2006).

Thirdly, this is the first economic crisis in Spain with an important volume of immigrant population. Effectively, the country has experienced an unprecedented volume of migration flows during the last 15 years, and Spain is nowadays the second OECD country in percentage of immigrants among the total population after the US. Nonetheless, although the intensity and impact of immigration in the Spanish society has been notorious, dynamic behaviours in terms of female participation in labor market have been less explored. For this reason, we considered necessary to focus on the differences among natives and immigrant women in terms of their labor behaviours, especially when the participation of women in the labor market according to origin is very unequal: while Latin-Americans and Eastern European immigrants show a very high employment rate, natives and other immigrant groups are much less active (Vidal-Coso, 2012). Our expectation is that the rising percentages of male unemployment should particularly affect the labor participation of those collectives with lowers participation rates.

Consequently, in this paper we seek to understand the decisions of native and immigrant women in Spain to enter into the labor market due to their partners' unemployment. Moreover, we also aim to investigate whether the partner's labor market situation influence the wife's labor force behaviour differently during the recession than during the time of economic propensity. Finally, this paper investigates if there are significant differences between natives and immigrant women in terms of transitions to the labor force due to job looses. In other words, this research aims to test, from a dynamic perspective, the existence of the 'added worker effect' in the Spanish case focusing on native and diverse immigrant women comparing the current crisis with the last period of economic expansion. We use the Spanish Labor Force Survey quarterly data in its panel version for the expansion period 2004-2007, and for the crisis period 2008-2011. This data has been pooled and is analyzed longitudinally to follow households during 18 months, which allows a very

detailed and robust empirical analysis. The subsamples used in this study are of 64,893 women (183,938 observations) in 2004-2007, and 71,444 women (222,342 observations) in 2008-2011.

In order to structure our analysis, this paper is divided into parts as follow: 2) theoretical framework, 3) hypotheses, 4) data and sample; 5) Methodology, 6) descriptive analysis, 7) multivariable analysis and 8) conclusions.

2. THEORETICAL FRAMEWORK: THE ADDED WORKER EFFECT FROM THE ECONOMIC THEORY ON FAMILY LABOR SUPPLY

It has been shown by previous research that once husbands in male breadwinner families lose jobs, families tend to cut back on expenditures by reducing consumption habits and living costs (Conger and Elder, 1994; Yeung and Hofferth, 1998), borrowing, selling assets and living off savings (Serneels, 2002). In the absence of savings, during economic crisis or during long periods of unemployment, however, what is often observed is that other members of the household start searching for jobs, especially wives (Lundberg, 1985). In cases of part-time workers already in the labor market, they tend to complement the working hours with second jobs (Moehling, 2001). The labor supply of a household member – meaning entering the labor force - as a response to unemployment of another household member is what has been defined as the 'added worker effect' (Ashenfelter, 1980; Mattingly and Smith, 2010). The implicit assumption is that married women are 'secondary workers'. As a consequence, they may have less of a permanent attachment to the labor market than married men, and their labor supply may be influenced largely by transitory factors (Mincer, 1962). From this perspective, a common strategy to generate additional income due to the partner's unemployment is for the wife to enter the labor force.

The idea of additional workers as a response for household economic constrains emerged from the economic theory on family labor supply and was firstly elaborated by Humphrey (1940, p. 412) during the American Great Depression period, although the author did not found empirically any evidence of such effect. Other early empirical estimates of the concept in the US are Huphrey (1940), Hansen (1961), Bowen and Finegan (1965) and Cain (1966). Since then, it has been released an abundant amount of country studies which aim at measuring this effect to the whole population with contradictory results depending of the kind of data and methodology applied. Lundberg, for example, (1985) found a small added worker effect for White wives, and Spletzer (1997) proved that women are more likely to join the labor force as an added effect. In contrast, Maloney (1991) and Juhn and Murphy (1996) found no evidence of the added worker effect in the US.

In Europe, for instance, a study using the European Household Panel (Prieto-Rodríguez and Rodríguez-Gutiérrez, 2003) has shown that only Italy presents strong evidence of the existence of a clear added worker effect among the total population. In Spain (but also in Germany, Portugal and the Netherlands), the inactivity of the husband stimulate woman's labor supply although this supply is not affected by the fact that the husband is unemployed. In another recent comparative study from a longitudinal perspective, McGuinnity (2002) found that in Germany, when men become unemployed, wives are at a higher risk of entering into the labor force. In Britain he did not observe such effect. Particularly for Spain, very few evidence was found apart from the already mentioned comparative paper from Prieto-Rodríguez and Rodríguez-Gutiérrez (2003). The same authors published in 2000 an analysis of the added worker effect specific for this country considering just married women behaviors in 1991, when immigration was not an issue. Their results show that women's labor participation is conditioned by their husbands' labor status and

their labor participation is stimulated when husbands are unemployed (Prieto-Rodríguez and Rodríguez-Gutiérrez, 2000).

Length of husband's unemployment an unemployment benefit is one of the recurrent explanations in the literature on this issue. For example, Dex et al. (1995) compared Britain, Ireland, Sweden, and Denmark (and the USA) aiming at observe the impact of welfare state regimes on added worker effect dynamics. The authors found through a cross-sectional analysis that in those countries where unemployment benefit is a wholly individual benefit, the unemployment of men do not affect wives' labor-market participation. In turn, when unemployment benefits take a wife's earnings into account, it was found a significant negative effect on their participation. When the value of the unemployment benefit received by the husband is linked to the wage received by his spouse, the woman could decide not to work to avoid the reduction of the unemployment benefit obtained by her husband. Cullen and Gruber (2000) found little evidence of an added worker effect, but believe that a ''crowding out'' effect on spousal labor supply may be triggered by unemployment insurance, as unemployment insurance lowers the probability of wives' labor supply. Futhermore, some research is found regarding the length of husband's unemployment. Moehling (2001) or McGinnity (2002) for example, conclude that wives may only enter the labor force when the expected unemployment spell is long.

Finally, the only previous research found that examines whether the added worker effect is stronger during a recession than during prosperity is that of Mattingly and Smith (2010). These authors conclude that there is evidence that wives are entering the labor force to a greater extent when their husband transitions out of employment, and this effect is unique to the Great Recession, as it is not evident during the nonrecession comparison years (Mattingly and Smith, 2010: 354). For the authors, the explanation is that Great Recession has produced massive layoffs for longer periods than many families may have anticipated, across several sectors of the economy, and therefore, husbands with both high and low unemployment risk may have experienced job loss.

To sum up, following Drobnic and Blossfeld (2004), the principle of interdependent or linked lives guides our research. Indeed, this principle is a useful point of reference to better understand the persisting inequalities between men and women in labor behaviour in modern societies, as the life course of the family underscores the interdependent life course of its members.

3. HYPOTHESES

We frame our study in the theoretical perspective regarding family labor supply and in the previous literature on the family adaptation to financial strain. We are firstly concerned in this paper with the decision of native and immigrant women to participate in the labor market or not given that their husbands[2] have lost their employment (i.e. husband becomes unemployed). In other words, we attempt to address the issue of the "added worker effect" by looking at a group of married or cohabiting women's labor-force transitions and examining if their decisions to enter the labor force (either to work or seek work) are influenced by their partner's employment situations. The hypothesis is that women enter to the labor force more frequently when their partner's become unemployed. Moreover, we also inquire into the influence of unemployment compensation in the added worker effect, following the findings of Dex et al (1995). In Spain,

[2] We refer to *husbands* and *wives* in order to facilitate the interpretation, although we also consider the cohabiting couples.

unemployment benefits, at least those identified by the SLFS, are not means-tested on the basis of family income. Although unemployed individuals receive a slightly higher rate if they have children, there is no extra allowance paid for a dependent spouse. Consequently, we expect that unemployment compensation would not create a disincentive for the wife to enter to the labor force like it seems to happen in countries where women's earnings are taken into account (Dex et al, 1995). Finally, we do not refuse the possibility of an adjournment in a woman entering into the labor force when the partner becomes unemployed. As McGinnity (2002) argued, for a number of reasons there may be a delay in a wife's change in labor-force status when a husband becomes unemployed. Following this author, we understand that a woman may initially believe that her husband's unemployment will not last long enough to justify the transaction cost associated with finding a job, only to give it up again when he returns to work. Then, in our analysis we also consider the effect of the length of the husband's unemployment in the wife's transition into the labor force. Therefore, we predict that probability of enter into labor force increase in parallel with the duration of the partner's unemployment.

The second purpose of this paper is to compare two very recent and contrasting economic and labor periods of the most contemporary history of Spain: the years of prosperity and the current context of recession. The period of crisis is an interesting scenario to analyse the added worker effect not only due to the tremendous increase in male unemployment rates. We believe that the same context of economic and labor uncertainly represents a major mobilization towards labor activity of women, as a form of 'anticipated' safeguard strategy, even if their partners remain employed. In this sense, our second hypothesis is that the crisis *per se* accts increasing the probability of women to enter into the labor force, independently of the labor status of the partner.

The third aim of the paper is to analyse if there are differences between natives and immigrant women in terms of labor supply due to job looses. Given the different social and economic resources of native and migrant families to face financial constraints, it is expected that the decision of wives to participate in the labor force, as a strategy to compensate the fall of household earnings, will differ depending on their birthplace. For instance, Latin-Americans and Eastern European women are the most active, with very high employment rates. We expect their labor behaviour will be less affected by their partner's labor status than other origins. Moreover, immigrants are known for their lack of savings in the country of destination as those resources are commonly remitted to the home country (Amuedo-Dorantes and Pozo, 2002; Bauer and Sinning, 2011). We could add to this the fact that in Spain there is an important amount of immigrants who have mortgages, besides their relatively short settlement process (Vono and Bayona, 2012). Consequently, we expect a higher urgency for women to work when economic constrains arrive into the households in comparison to the natives.

Spletzer (1977) indicated that the added worker effect should be analyzed using panel data with a short recall period as cross-sectional data cannot adequately capture the intertemporal decisions of wives joining the labor due to the husbands' unemployment. Following this author, we use the SLFS data in its panel version to take into account the dynamic implications of the 'added worker effect'. We strongly expect that a woman's previous status in terms of labor force participation will have a strong influence on her behaviour when her husband loses his job, as shown by previous studies (Maître et al, 2003). Therefore, as Prieto-Rodríguez and Rodríguez-Gutiérrez (2003) explained, by using a longitudinal approach we can relax the assumption that the wife's current status in terms of participation in the labor market is independent of her previous status.

4. DATA AND SAMPLE

We analyzed the SLFS panel quarterly data files for the prosperity period, from 3rd quarter of 2004 until 3rd quarter of 2007 (inclusive) and from the 3rd quarter of 2008 until 3rd quarter of 2011 for the crisis period. The SLFS is collected quarterly and includes a representative sample of the whole Spanish territory of roughly 65.000 households which are interviewed quarterly about their labor-force status in the reference week (previous week). This survey is a rotative panel: in each wave 1/6 of the sample is substituted, remaining 5/6 of the sample. Consequently, we must apply panel techniques to analyse this data source, as otherwise we could seriously misinterpreted the information we obtain from it. Every wave is representative of any observed moment, but all waves considered together lead to a representative pattern for a specific individual.

The SLFS data is the best option for the purpose of our analysis for several reasons. First, the quarterly files contain a great variety of variables at individual level about socio-demographic and labor characteristics. And, as SLFS allows the reconstruction of households characteristics it is possible to evaluate changes in family labor force status. Second, SLFS was modified in 2005 and adapted to the new demographic and labor context, in special due to the rapid and recent grown of foreigners living in Spain. The most important consequence of this change is that new weight factors applied to the sample are more precise in terms of immigrant population. Third, the SLFS also provides very timely information that make possible to assess the impact of the recession on family strategies regarding labor supply.

We matched respondents in all observations by linking their households´ identifier with person line numbers. This allowed us not only to identify the wives characteristics in all waves but also the spouse's information. In addition, although entering to the labor force is in most of cases a joint decision with the husband, in this paper we treat the husband's transitions into their labor force status as exogenous to his wife's and as a time-varying covariate in the model. For each individual and wave we match the labor status of the husband to that of this wife. We are particularly interested in the effect of the transition to unemployment in husbands from *t-1* to *t*.

Further we limited our sample to continuously married or cohabiting women (both active and inactive) between the ages of 20 and 55. Although the length of time a person is follow in the survey is very short and within this period the partnership stability is the norm, we decided to exclude persons not continuously married or cohabiting in an attempt to condition on the stability of marriage. In line with McGinnity (2002) and Lampard (1994) we understand that male unemployment may have an impact on marriage itself and there also may be an indirect influence on female labor participation as a result of this.

Additionally, our sample is limited to those wives whose husbands are in the labor force (either employed or unemployed) and aged 20-55. These steps yielded a sample of 64,893 wives (183,938 observations) in the 2004-2007 period, and a sample of 71,444 wives (222,342 observations) in 2008-2011 period. However, sample attrition, households moves, and other data collection factors lowered the number of observations / sample. One of the limitations of the SLFS is that it does not track movers. In the context of a recession with higher than average foreclosures and frozen housing markets, it is unclear whether those families experiencing husbands' job loss are more ore less apt to move. In any event, our results can be generalized to those who did not move.

5. METHODS

Wives' transition into the labor force are studied from one observation or wave *(t-1*) to the next observation or wave (*t*) with a dichotomous dependent variable that is coded 1 if a woman is in the labor market (employed or looking for a job) by *t* and 0 otherwise, depending on:

1. Her labor force status in previous observation (*t-1)*
2. Her husband's employment status
3. Her birth-place
4. Her socio-demographic characteristics:
    - 4.1. Age
    - 4.2. Educational attainment
5. Their family features:
    - 5.1. Number of children under the age of 3
    - 5.2. Number of children under the age of 16

In order to test the "added worker effect" we choose to analyse transitions into labor force participation instead of transitions into employment. Although wives would aim to find a job they may not find it or become unemployed after a short period, especially during economic crisis. In this sense, and following Prieto-Rodríguez and Rodríguez-Gutiérrez (2000), we adopt the concept of participation as an equivalent as being part of the active population (either workers or unemployed).

Therefore, we use a cluster-specific model where, in order to relax the assumption of conditional independence among the responses for the same person given the covariates, we include a subject-specific random intercept ζ_j in the linear predictor (Rabe-Hesketh and Skrondal, 2005). The obtained model is a random-intercept logistic regression model with random effects $\zeta_j \approx \mathrm{N}(0,\varphi)$:

$$\log it\left\{\Pr(y_{ij,}=1 \mid x_{ij,} y_{i-1,j}, \xi_j)\right\} = \beta_1 + \beta_2 y_{i-1,j} + \beta_3 x_{3ij} + \beta_4 x_{4ij} + \beta_5 x_{5ij} + \zeta_j$$

Where $y_{ij,}=1$ denotes labor force participation; $y_{ij,}=0$ means not participating; β_1 is the constant; $y_{i-1,j}$ is the wife's labor force status in *t-1*; x_{3ij} is the employment status of husband; x_{4ij} is the socio-demographic profile, and x_{5ij} are the family characteristics. From the model we obtained the odds ratios of a wife being active by *t* given her labor status by *t-1* and given the rest of the covariates. We also calculated the predicted probabilities of participating in the labor force by *t* for a wife's not economically active by *t-1* for each value of the rest of predictors:

$$\Pr\ (y_{ij,}=1 \mid y_{i-1,j}, x_{ij}, \xi_j) = \frac{\exp\left(\beta_1 + \beta_2 y_{i-1,j} + \beta x_{ij}\right)}{1+\exp\left(\beta_1 + \beta_2 y_{i-1,j} + \beta x_{ij}\right)}$$

Furthermore, as it was explained before, in our analysis we consider different models in order to test measurements of husband's unemployment. In every model, the coefficients will show if, ceteris paribus, the different features of the husband's labor status has an influence on woman's

behaviour. In the first model we are particularly interested in the effect of the husband's labor-force transition from *t* to *t-1* recorded as one of:

1. Husband still employment
2. Husband becomes unemployed
3. Husband still not employed
4. Husband found employment

In the second model, we test the effect of the duration (very short-time; medium term; long-term) of husband's unemployment in the wife's transition to labor force. The resulting covariate is:

1. Husband employed
2. Husband unemployed, never employed before
3. Husband unemployed 1-5 months
4. Husband unemployed 6-11 months
5. Husband unemployed 12 or more months

In the third model we are concerned whether the husband's unemployed-related benefits are linked to the wife's labor transition. Therefore, given our interest in the effect of benefit receipt on the wife's employment, we distinguish husband's unemployment by benefit status:

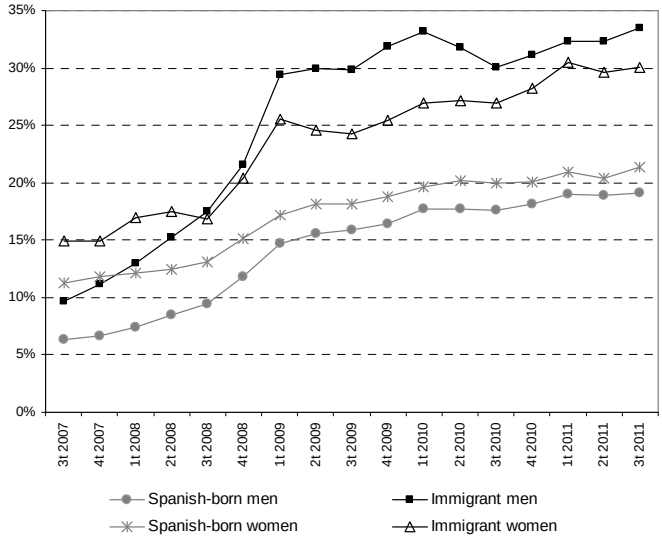
1. Husband employed
2. Husband unemployed, receiving benefit
3. Husband unemployed, without benefit

Finally, we ran a fourth model on pooled 2004-2007 and 2008-2011 data in order to analyse whether there are similar effects during prosperity and crisis periods.

6. DESCRIPTIVE ANALYSIS

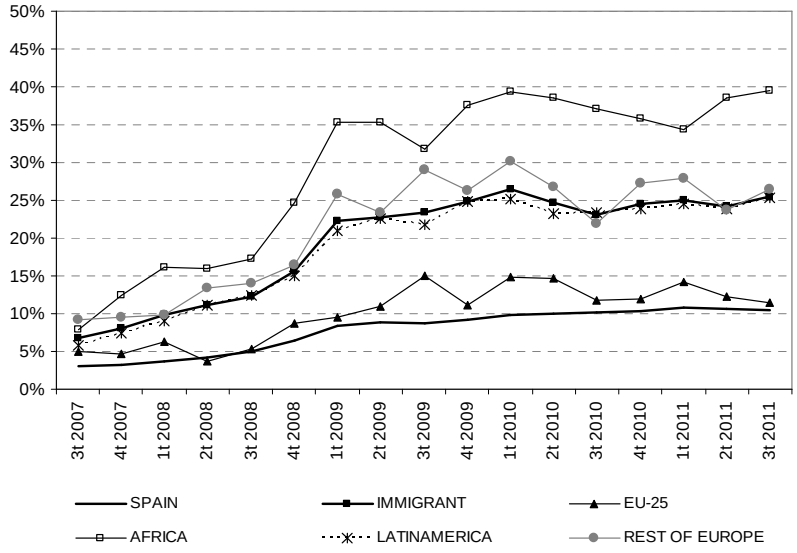
The socioeconomic context in Spain have changed dramatically after the economic miracle experienced by the Spanish economy during approximately a decade which had come to an end between 2007 and 2008. The new context is one of a deep economic contraction which is clearly reflected in the abrupt increase of unemployment levels. Trends in unemployment rates by birthplace and sex from the 3rd quarter of 2007 to the 3rd quarter of 2011 are shown in Figure 1. Trends show higher rates of unemployment for immigrants in comparison to natives as well as higher rates for men in comparison to women. In fact, one of the characteristics of the current economic recession in Spain is that the burden of job looses fallen on men as they were employed in the most affected industries by the financial collapse, especially in construction and related sectors. According to Domingo and Vidal-Coso (2012), part of the increase in female unemployment must be attributed to the increase in the female labor force participation. What is also clear is that it has been a spectacular increment of women whose husband has become unemployed during the crisis. Although this is true for all nationalities, the slopes are stepper for immigrants from Africa, Eastern European and Latin American countries (figure 2).

Figure 1. TRENDS IN UNEMPLOYMENT RATES (2007-2011)



Data source: Spanish Labor Force survey, 3rd quarter 2004-3rd quarter 2011

Figure 2. PERCENTAGE OF WOMEN WHOSE PARTNER IS UNEMPLOYED (2007-2011)



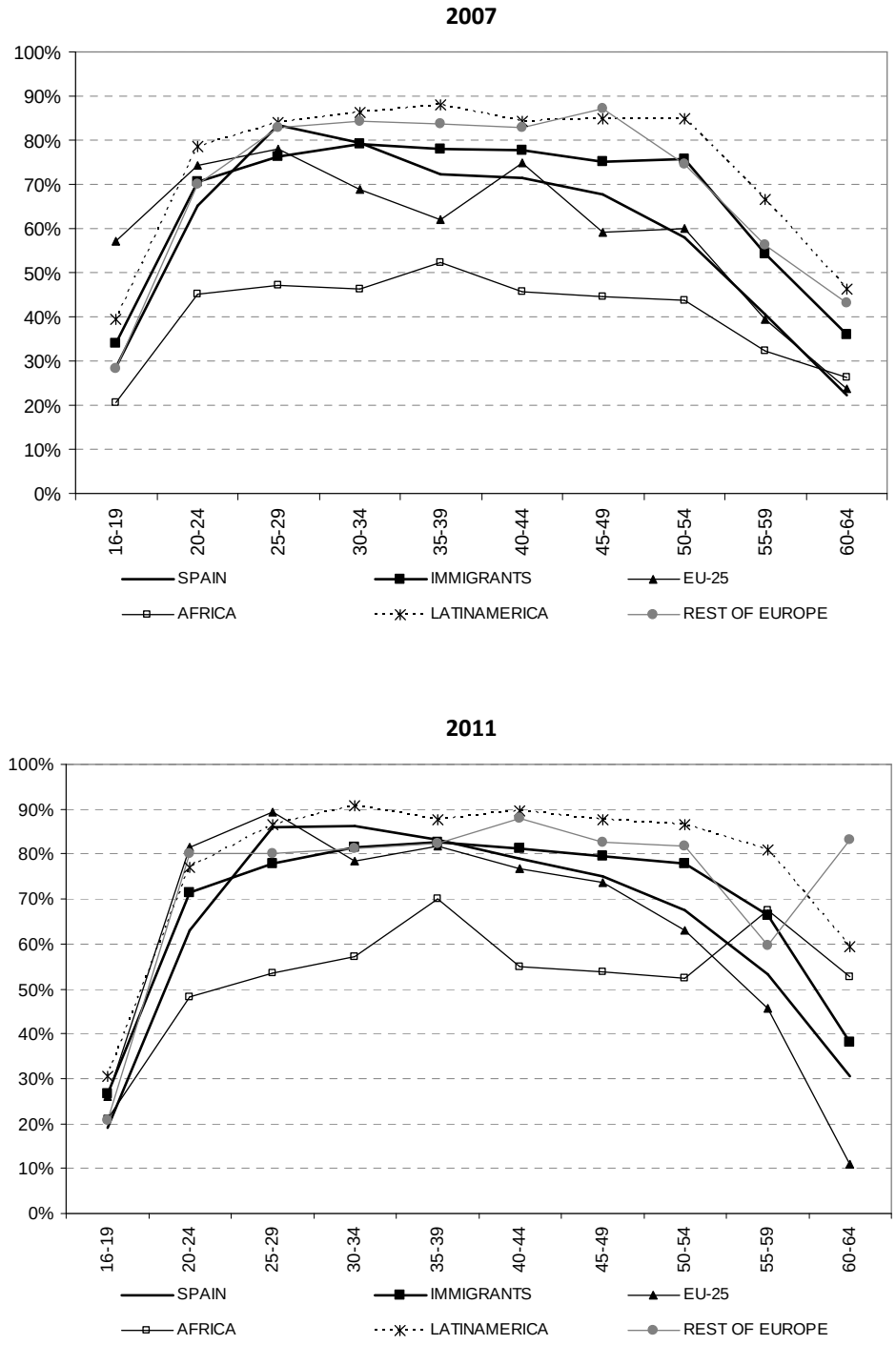
Data source: Spanish Labor Force survey, 3rd quarter 2004-3rd quarter 2011

Female labor force participation percentages shown in figure 3 suggest that presence of adult women in the labor force has increased significantly in all groups of birthplace in the short period of time of 4 years between 2007 and 2011. Nonetheless, if there is a collective of women whose participation levels have risen in 2011 compared to the levels of 2007, this is the African collective, although the presence of African women in the labor force continues below that of rest of collectives, in special they are far away from Latin-America and from the Rest of Europe women, the two collectives with the highest participation levels at all age groups. Table 1 goes a step further in order to link the observed increment in female labor force participation with the change in economic and labor contexts. In this table we compare the labor-force status between male and female partners in two very distinct periods of time: one in the final of the expansion period, the

3rd quarter of 2007 and the other in the most negative scenario of the current crisis, the 3rd quarter of 2011. Data is presented separately for every origin in order to asses the different influence of both the economic crisis and the husband employment status. Results show once more that women' labor force participation has raised from 2007 to 2011 for all origins regardless the employment situation of their partners. However, we could also observe higher participation for Spanish-born women whose partners are unemployed or out of the labor force, a trend that is followed by women from Europe (no-EU25). Furthermore, males' unemployment during the crisis is related to a significant increment in the labor participation of Spanish and African partners. Although the percentages are higher when men are unemployed in comparison to when they are employed, we observe an increase in the percentages of economically active women from expansion to recession context for all states of their partners. Therefore, we need to examine these differences controlling for a set covariates to conclude the existence of an 'added worker effect'.

Figure 4 portraits the different divisions of labor within couples of native and migrant origins in 2007 (during the expansion period) and in 2011 (during the recession). According to Figure 4, dual-employed couples and couples where only he is employed have decreased in comparison to those couples where only she is employed and those where neither she or he is employed. Therefore, the first conclusion is that during the current recession context the economic pressure within couples has dramatically increased, mainly as a consequence of husband's unemployment. This new situation brings a new family scenario where women became in many cases the head of the household. However, we have also observed a dramatic increase of "not-employed couples", especially among immigrants and particularly among Africans. If we compare the labor profile of African couples before and during the current economic crisis we could say that rapid and profound changes have occurred inside African families. We observe a decline of the traditional family structure such as the one-earner family model in which men are the main economic providers and women the main caregivers (González, 2006). There is a relative increase of double-employed couples and higher percentages of couples where only she is employed. However, the spectacular rise of couples where both members are unemployed makes it very difficult to think in this change as a positive pattern towards a more egalitarian family model.

Figure 3. FEMALE LABOR FORCE PARTICIPATION: 2007 AND 2011



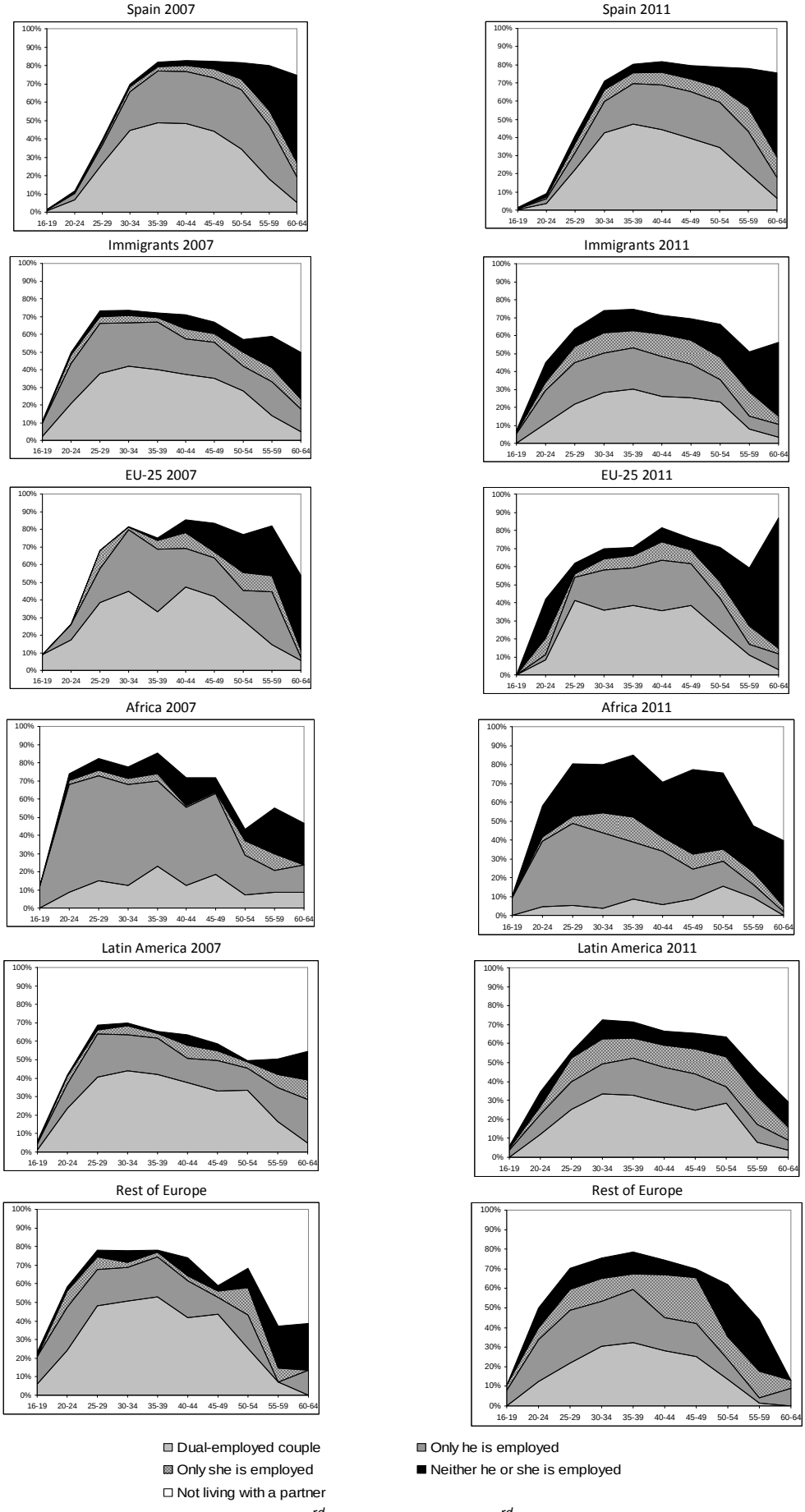
Data source: Spanish Labor Force survey, 3rd quarter 2004 and 3rd quarter 2011

Table 1. LABOR-FORCE STATUS OF WORKING-AGE WOMEN BY THEIR PARTNERS' LABOR-FORCE STATUS 2007 AND 2011

Husbands' labour-force status	Wives' labour-force status								Relative increment (2011-2007) in the wives labour force participation
	2007				2011				
	Employed	Unemployed	Out of the labour force	Labor force participation	Employed	Unemployed	Out of the labour force	Labor force participation	
SPAIN									
Employed	59.3%	5.9%	34.8%	**65%**	62.2%	11.5%	26.3%	**74%**	**8.4%**
Unemployed	48.5%	17.1%	34.4%	**66%**	49.2%	29.5%	21.3%	**79%**	**13.1%**
Out of the labour-force	26.3%	3.5%	70.2%	**30%**	32.3%	7.6%	60.1%	**40%**	**10.1%**
EU-25									
Employed	58.4%	5.7%	35.9%	**64%**	61.4%	13.2%	25.5%	**75%**	**10.5%**
Unemployed	74.5%	7.1%	18.4%	**82%**	53.4%	34.5%	12.1%	**88%**	**6.3%**
Out of the labour-force	25.0%	0.9%	74.1%	**26%**	16.4%	3.1%	80.6%	**19%**	**-6.5%**
AFRICA									
Employed	22.1%	13.4%	64.5%	**35%**	16.9%	27.9%	55.2%	**45%**	**9.3%**
Unemployed	26.8%	18.8%	54.4%	**46%**	21.4%	37.4%	41.2%	**59%**	**13.1%**
Out of the labour-force	24.1%	14.7%	61.2%	**39%**	15.5%	18.6%	65.9%	**34%**	**-4.8%**
LATINAMERICA									
Employed	66.6%	12.2%	21.2%	**79%**	62.6%	21.5%	15.9%	**84%**	**5.3%**
Unemployed	69.0%	19.4%	11.6%	**88%**	60.8%	31.9%	7.3%	**93%**	**4.2%**
Out of the labour-force	49.8%	9.4%	40.7%	**59%**	47.7%	21.3%	31.0%	**69%**	**9.7%**
REST OF EUROPE									
Employed	67.7%	10.6%	21.7%	**78%**	52.8%	21.9%	25.3%	**75%**	**-3.7%**
Unemployed	55.7%	20.3%	24.0%	**76%**	52.6%	35.6%	11.8%	**88%**	**12.2%**
Out of the labour-force	36.1%	14.0%	49.9%	**50%**	53.4%	20.3%	26.4%	**74%**	**23.6%**

Data source: Spanish Labor Force survey, 3rd quarter 2004 and 3rd quarter 2011

Figure 4. WOMEN'S LIVING ARRANGEMENTS ACROSS AGE GROUPS: 2007 AND 2011



Data source: Spanish Labor Force survey, 3rd quarter 2004 and 3rd quarter 2011.

7. MULTIVARIABLE ANALYSIS: TRANSITION TO THE LABOR FORCE

In order to summarize the results of our analyses, we will mainly focus on the coefficients and probabilities obtained from model 1 (table 2), which includes the husband's employment transition from *t* to *t-1.* However, we will also briefly describe the effects on our outcome variable of the length of husband's unemployment (Model 2 in appendix 1) and of the husband's unemployment benefits (Model 3 in appendix 2).

As expected the probabilities of a wife entering the labor force being inactive in previous observation is higher in the recession period (19.6%) than during the expansion (15.7%). However, those are the probabilities for Spanish-born women. In both periods, birthplace coefficients indicate that the propensity to enter the labor force of other EU-25 women is very similar to the native women. Additionally, some interesting trends are found by birthplace. On the one hand, those wives from Africa, North America, Oceania and Asia show lower probabilities than native women. On the other hand, wives from the rest of Europe (Eastern Europe) and from Latin-America are more prone of participating on the labor force regardless their previous labor status. Moreover, we can also observe that probabilities of labor force participation are higher during the period of crisis for Spanish-born, UE-25, Africa and Latin-America wives.

When we include the husband's employment status in the model we found a strong, statistically significant effect of husband's job loss on wives' propensity to enter the labor force. Effectively, wives of husbands who become unemployed during the recession period present a probability of 25.1% of entering the labor force. Those whose husbands remained employed show a smaller probability (18.9%) but the value for wives of husbands remaining unemployed from the previous observation is higher (26.8%). Although husband's job loss affects women's dynamics in both periods, a minimal effect is found for the prosperity period, suggesting than when the economic context is favourable, husbands´ unemployment affect less the wives' transition to the labor force. Moreover, considering that the reference category is 'Husband still employed' the transitions probabilities are those expected for wives with employed partners. This explains why transitions rates are lower than before controlling by husband's employment status. Although these effects are repeated for all origins, results suggest that African women entering the labor force are purely 'added workers' as the whole increase is caused the husband's unemployed, without being affected by the context of crisis *per se*. In fact, when their husbands remain employed their transitions rate of enter into labor force (11.5) during the crisis are very close to that they present during the expansion period (11.1). On the contrary, for the rest of the collectives considered, their transitions rates are higher during the crisis, even for those with employed partners, meaning that for them, the economic and employment uncertainty during this crisis causes an anticipated strategic behaviour in terms of enter in the labor force.

In model 2 (appendix 1) we can observe that the likelihood of transition to the labor force is positively associated with the length of the husband's unemployment, whereas the effect of the husband's unemployment benefit in our outcome variable is minimal, as expected (model 3 in appendix 2).

Age and educational attainment affect in a significant way our outcome variable. Higher probabilities of transition to labor force participation are obtained for young adult women (aged 25-29 and 30-34) and with higher levels of education: wives with higher school education are almost 2 times more likely to be in the labor force than women with less than compulsory school regardless their previous labor-force status, whereas women with a university degree are 3 times

more likely of being active by *t*. Finally, and consistently with our expectations, the presence of dependent children in the household decreases the likelihood of wives to enter into the labor force. The effects of those socio-demographic and family characteristics are similar in both periods, although during the crisis the educational attainment has lost part of its effect, indicating that when the economic pressure is more urgent the wives' participation depend less on their education level and more on the family earnings.

To conclude with the description of the results, the statistically significant interaction term in model 4 (table 3) indicates that wives react to husbands' unemployment differently during the recession than during the expansion period. Effectively, the coefficient of the interaction term indicates that although the husbands´ unemployment affects wives´ transition by its own, its influence is stronger (relative odds = 1.29) during the context of crisis than during the previous period of expansion (relative odds = 1.0). Therefore, results in model 4 reaffirm the observed differences in the influence of husband unemployed over the outcome variable in both periods described in models 1 to 3.

8. CONCLUSION AND DISCUSSION

From our analysis we can conclude that there exists in Spain an 'added worker effect' in terms of higher transitions to labor force of wives whose partners have become unemployed. Although we identify this effect in both, expansion and crisis periods, the influence of the partners' employment status in the labor supply of native and immigrant women is clearly higher during the crisis period, as expected. And this influence is true for all collectives of origin considered. Nonetheless, consistent with our expectation, the unemployment compensation received by the husband does not create a significant disincentive for the wife to enter to the labor force. However, we must clarify at this point that the unemployment compensation identified by the SLFS is not means-tested on the basis of family income and, thus, it is not affected by the spouse's wave. Finally, the 'added worker effect' is higher for longer durations of husband's unemployment, although differences are not very significant.

Regarding the second purpose of this paper, our results clearly point to a 'crisis effect'. Effectively, transitions rates to the labor force are higher for women during the crisis. Indeed, the probability of transition to the workforce from inactivity for Latin Americans, Spaniards and Africans has increased during these two periods a 28%, 25% and 16% respectively. Immigrants from EU-25 countries experienced a relative increase of 13%, while changing economic environment seems to have barely affected Europeans (no-EU) and results are inconclusive for Asian and North-Americans due to sample size. Nonetheless, the interesting finding here is that probabilities, especially for Latin Americans and Spaniards, are also higher even when their partners remain employed, showing a major mobilization towards labor activity of these women, as a form of 'anticipated' safeguard strategy to the rising risks of job loss during the crisis. The statistical significant interaction term in model 4 reinforce the influence of the depression context in the female mobilisation toward the labor force.

Regarding the differences by origin, we have found that European (no-EU) and Latin American women are the groups more likely to enter the workforce from inactivity in both periods, which reflects the effect of the high labor force participation of those groups in our country. Regarding specifically the added worker effect, the answer to our research question is that there is an important added worker effect for all origins in both periods; nonetheless the levels are very different among origins. Indeed, as we expected, we have found that immigrant women are more

influenced in their transition to the activity by the husbands' employment status than native women, although differences are not strong. Furthermore, one of the most relevant findings is that Africans' behaviour could be considered almost exclusively an added worker effect, as the crisis seems to not affect their probability to join the working force unless their partners become unemployed. Indeed, the estimated probability for the period of economic crisis for Africans with husbands who stay employed (reference category) is very similar to the estimations for 2004-2007. This similarity in the probabilities is not found for other origins. In this sense, while for other origins the effect of the crisis itself represents a major mobilization towards labor activity (though the husband remains employed), the crisis, per se, do not affect the probability of African women to enter into the workforce. Thus, for African women the real financial urgency that represents the unemployment of the husband is needed to decide to start being an active actor in the labor market, beyond the economic uncertainty.

Table 2. MODEL 1: RANDOM-INTERCEPT LOGISTIC REGRESSION ANALYSIS: PREDICTING THE TRANSITION OF WIVES ENTERING THE LABOR FORCE BY TIME *t* CONTROLLED BY THEIR LABOR FORCE PARTICIPATION AT *t-1* AND THE HUSBAND'S EMPLOYMENT TRANSITION FROM *t-1* TO *t*

	Crisis (2008-2011)												Expansion (2004-2007)											
Variables	Model 1			Model 2			Model 3			Model 4			Model 1			Model 2			Model 3			Model 4		
	Exp (ß).	S.E.	Prob	Exp (ß).	S.E.	Prob	Exp (ß).	S.E.	Prob	Exp (ß).	S.E.	Prob	Exp (ß).	S.E.	Prob	Exp (ß).	S.E.	Prob	Exp (ß).	S.E.	Prob	Exp (ß).	S.E.	Prob
Previously inactive	0.02 ***	0.00	19.6	0.02 ***	0.00	18.9	0.02	0.00	13.9	0.02 ***	0.00	16.6	0.02 ***	0.00	15.7	0.02 ***	0.00	15.6	0.02 ***	0.00	12.5	0.02 ***	0.00	15.1
Area of birthplace																								
Spain	1 ref.		19.6	1 ref.		18.9	1 ref.		13.9	1 ref.		16.6	1 ref.		15.7	1 ref.		15.6	1 ref.		12.5	1 ref.		15.1
EU-25	1.01 ns.	0.06	19.7	0.99 ns.	0.05	18.8	0.89 **	0.05	12.5	0.87 **	0.05	14.8	1.13 **	0.07	17.5	1.15 **	0.07	17.5	1.01 ns.	0.06	12.6	1.00 ns.	0.06	15.2
Rest of Europe	1.14 **	0.06	21.8	1.09 *	0.06	20.3	0.92 ns.	0.05	13.0	0.89 **	0.05	15.1	1.51 ***	0.11	22.0	1.48 ***	0.11	21.4	1.20 **	0.09	14.7	1.14 *	0.08	16.9
Africa	0.63 ***	0.03	13.2	0.56 ***	0.03	11.5	0.59 ***	0.03	8.8	0.65 ***	0.04	11.4	0.69 ***	0.05	11.4	0.67 ***	0.05	11.1	0.72 ***	0.05	9.3	0.77 ***	0.06	12.1
Latin America	1.56 ***	0.06	27.6	1.51 ***	0.06	26.0	1.33 ***	0.05	17.7	1.32 ***	0.05	20.7	1.46 ***	0.06	21.5	1.46 ***	0.06	21.2	1.22 ***	0.05	14.9	1.22 ***	0.05	17.8
North America and Oceania	0.62 *	0.18	13.1	0.61 *	0.17	12.4	0.43 ***	0.12	6.5	0.44 ***	0.13	8.0	1.58 ns.	0.55	22.7	1.63 ns.	0.58	23.1	0.99 ns.	0.34	12.4	1.00 ns.	0.34	15.1
Asia	0.64 ***	0.09	13.5	0.61 ***	0.08	12.5	0.58 ***	0.07	8.6	0.58 ***	0.07	10.3	1.08 ns.	0.20	16.8	1.14 ns.	0.21	17.4	1.03 ns.	0.18	12.8	1.02 ns.	0.18	15.4
Husband labour status transition																								
Husband still employed				1 ref.		18.9	1 ref.		13.9	1 ref.		16.6				1 ref.		15.6	1 ref.		12.5	1 ref.		15.1
Husband becomes unemployed				1.44 ***	0.06	25.1	1.59 ***	0.07	20.4	1.59 ***	0.07	24.0				1.07 ns.	0.07	16.5	1.20 ***	0.08	14.6	1.20 ***	0.08	17.6
Husband still not employed				1.57 ***	0.04	26.8	1.81 ***	0.05	22.6	1.81 ***	0.05	26.4				1.26 ***	0.06	18.8	1.45 ***	0.07	17.2	1.45 ***	0.07	20.5
Husband found employment				1.12 ***	0.05	20.7	1.25 ***	0.05	16.8	1.25 ***	0.05	19.9				1.11 **	0.06	17.0	1.26 ***	0.06	15.2	1.26 ***	0.06	18.3
Socio-demographic characteristics																								
Age at first observation																								
20-24							1 ref.		13.9	1 ref.		16.6							1 ref.		12.5	1 ref.		15.1
25-29							1.14 **	0.07	15.5	1.17 **	0.07	18.8							0.95 ns.	0.06	12.0	0.99 ns.	0.06	15.0
30-34							0.99 ns.	0.06	13.8	1.07 ns.	0.06	17.5							0.85 ***	0.05	10.8	0.93 ns.	0.05	14.1
35-39							0.95 ns.	0.05	13.3	0.99 ns.	0.06	16.5							0.82 ***	0.05	10.4	0.86 ***	0.05	13.2
40-44							0.92 ns.	0.05	12.9	0.88 **	0.05	14.9							0.86 ***	0.05	10.9	0.82 ***	0.05	12.7
45-49							0.88 **	0.05	12.5	0.77 ***	0.05	13.3							0.80 ***	0.05	10.3	0.69 ***	0.04	11.0
50-54							0.70 ***	0.04	10.2	0.59 ***	0.03	10.4							0.67 ***	0.04	8.8	0.56 ***	0.03	9.0
Educational Level																								
Less than compulsory school							1 ref.		13.9	1 ref.		16.6							1 ref.		12.5	1 ref.		15.1
Compulsory school							1.32 ***	0.06	17.6	1.32 ***	0.06	20.8							1.29 ***	0.06	15.5	1.28 ***	0.06	18.5
High school graduate							1.85 ***	0.09	23.0	1.88 ***	0.09	27.2							1.96 ***	0.09	21.8	1.97 ***	0.09	25.9
University degree							3.07 ***	0.15	33.1	3.19 ***	0.16	38.8							3.50 ***	0.17	33.3	3.63 ***	0.18	39.2
Family variables																								
Number of children under 16																								
0										1 ref.		16.6										1 ref.		15.1
1										0.88 ***	0.02	14.8										0.87 ***	0.02	13.4
2										0.77 ***	0.02	13.2										0.76 ***	0.02	11.9
Number of children under 3																								
0										1 ref.		16.6										1 ref.		15.1
1										0.79 ***	0.02	13.5										0.75 ***	0.02	11.8
2										0.64 ***	0.04	11.2										0.67 ***	0.05	10.6
Constant	14.29 ***	0.15		13.71 ***	0.14		8.38 ***	0.61		10.03 ***	0.75		10.87 ***	0.11		10.80 ***	0.11		7.28 ***	0.51		8.83 ***	0.64	
Log likelihood	-68,539			-67,283			-66,148			-65,974			-63,204			-61,564			-60,316			60,132		
Wald Chi²	79,513 ***			77,944 ***			75,911 ***			75,606 ***			73,548 ***			71,802 ***			69,533 ***			69,209 ***		

Statistic Significance= "ns" non significant; " * " error < 0.10; " ** " error < 0.05; " *** " error < 0.01.

Data source: Spanish Labor Force survey, 3rd quarter 2004-3rd quarter 2007 and 3rd quarter 2008-3rd quarter 2011

Table 3. MODEL 4: RANDOM-INTERCEPT LOGISTIC REGRESSION INTERACTIVE ANALYSIS: PREDICTING THE TRANSITION OF WIVES ENTERING THE LABOR FORCE BY TIME *t* CONTROLLED BY THEIR LABOR FORCE PARTICIPATION AT *t-1* AND INTERACTION TERM (HUSAND EMPLOYMENT X PERIOD). POOLED 2004-2007 AND 2008-2011

Variables	Exp (ß).		S.E	Prob.
Previously inactive	0.02	***	0.00	17.4
Husband employment status				
Husband employed	1	ref.		17.4
Husband unemployed	1.35	***	0.05	23.5
Period				
Expansion (2004-2007)	1	ref.		17.4
Recession (2008-2011)	1.23	***	0.01	21.5
Husband employment status x period				
Husband unemployed x recession	1.29	***	0.06	37.5
Constant	8.62	***		
Log likehood	-128,822			
Chi-Square	148,312	***		

Statistic Significance= "ns" non significant; " * " error < 0.10; " ** " error < 0.05; " *** "
Note: Includes the rest of the independent variables

Data source: Spanish Labor Force survey, 3rd quarter 2004-3rd quarter 2007 and 3rd quarter 2008-3rd quarter 2011

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APPENDIX 1

MODEL 2: RANDOM-INTERCEPT LOGISITC REGRESSION ANALYSIS: PREDICTING THE TRANSITION OF WIVES ENTERING THE LABOR FORCE BY TIME *t* CONTROLLED BY THEIR LABOR FORCE PARTICIPATION AT *t-1* AND THE LENGTH OF HUSBAND'S EMPLOYMENT

	Crisis (2008-2011)															Expansion (2004-2007)														
Variables	Model 1				Model 2				Model 3				Model 4				Model 1				Model 2				Model 3				Model 4			
	Exp (ß).		S.E.	Prob	Exp (ß).		S.E.	Prob	Exp (ß).		S.E.	Prob	Exp (ß).		S.E.	Prob	Exp (ß).		S.E.	Prob	Exp (ß).		S.E.	Prob	Exp (ß).		S.E.	Prob	Exp (ß).		S.E.	Prob
Previously inactive	0.02	***	0.00	19.6	0.02	***	0.00	18.9	0.02	***	0.00	14.2	0.02	***	0.00	16.9	0.02	***	0.00	15.7	0.02	***	0.00	15.6	0.02	***	0.00	12.6	0.02	***	0.0	15.2
Area of birthplace																																
Spain	1	ref.		19.6	1	ref.		18.9	1	ref.		14.2	1	ref.		16.9	1	ref.		15.7	1	ref.		15.6	1	ref.		12.6	1	ref.		15.2
EU-25	1.01	ns.	0.06	19.7	1.00	ns.	0.05	18.9	0.89	**	0.05	12.9	0.88	**	0.05	15.2	1.13	**	0.07	17.5	1.13	**	0.07	17.4	0.99	ns.	0.06	12.6	0.99	ns.	0.1	15.1
Rest of Europe	1.14	**	0.06	21.8	1.09	ns.	0.06	20.3	0.93	ns.	0.05	13.3	0.89	**	0.05	15.4	1.51	***	0.11	22.0	1.51	***	0.11	21.9	1.24	***	0.09	15.2	1.17	**	0.1	17.4
Africa	0.63	***	0.03	13.2	0.56	***	0.03	11.6	0.59	***	0.03	9.0	0.65	***	0.04	11.7	0.69	***	0.05	11.4	0.68	***	0.05	11.2	0.73	***	0.05	9.6	0.79	***	0.1	12.4
Latin America	1.56	***	0.06	27.6	1.51	***	0.06	26.1	1.34	***	0.05	18.2	1.33	***	0.05	21.3	1.46	***	0.06	21.5	1.46	***	0.06	21.3	1.24	***	0.05	15.2	1.23	***	0.1	18.2
North America and Oceania	0.62	*	0.18	13.1	0.61	*	0.17	12.5	0.43	***	0.12	6.7	0.44	***	0.13	8.3	1.58	ns.	0.55	22.7	1.58	ns.	0.56	22.7	0.95	ns.	0.32	12.1	0.96	ns.	0.3	14.7
Asia	0.64	***	0.09	13.5	0.63	***	0.08	12.9	0.60	***	0.08	9.0	0.59	***	0.08	10.8	1.08	ns.	0.20	16.8	1.08	ns.	0.20	16.7	0.98	ns.	0.17	12.4	0.98	ns.	0.2	14.9
Husband unemployment duration																																
Employed					1	ref.		18.9	1	ref.		14.2	1.00	ref.		16.9					1	ref.		15.6	1	ref.		12.6	1	ref.		15.2
Unemployed, never employed before					1.41	***	0.60	24.8	1.41	ns.	0.59	19.0	1	ns.	0.56	21.2					0.77	ns.	0.38	12.4	0.79	ns.	0.38	10.2	0.79	ns.	0.4	12.5
Unemployed 1-5 months					1.47	***	0.05	25.6	1.63	***	0.06	21.3	1.64	***	0.06	25.1					1.12	**	0.06	17.2	1.26	***	0.07	15.4	1.26	***	0.1	18.5
Unemployed 6-11 months					1.53	***	0.07	26.3	1.73	***	0.08	22.4	1.73	***	0.08	26.1					1.25	**	0.12	18.8	1.40	***	0.13	16.9	1.41	***	0.1	20.2
Unemployed 12 or more months					1.61	***	0.07	27.3	1.88	***	0.08	23.8	1.88	***	0.08	27.8					1.29	***	0.09	19.4	1.52	***	0.11	18.0	1.52	***	0.1	21.4
Socio-demographic characteristics																																
Age at first observation																																
20-24									1	ref.		14.2	1	ref.		16.9									1	ref.		12.6	1	ref.		15.2
25-29									1.14	**	0.07	15.9	1.16	**	0.07	19.2									0.96	ns.	0.06	12.2	1.00	ns.	0.1	15.2
30-34									0.99	ns.	0.06	14.1	1.06	ns.	0.06	17.8									0.86	***	0.05	11.0	0.94	ns.	0.1	14.4
35-39									0.94	ns.	0.05	13.5	0.98	ns.	0.06	16.7									0.82	***	0.05	10.6	0.87	**	0.0	13.5
40-44									0.91	ns.	0.05	13.2	0.88	**	0.05	15.2									0.86	***	0.05	11.1	0.83	***	0.0	12.9
45-49									0.87	**	0.05	12.7	0.76	***	0.04	13.5									0.81	***	0.04	10.5	0.70	***	0.0	11.2
50-54									0.70	***	0.04	10.4	0.58	***	0.03	10.6									0.68	***	0.04	9.0	0.56	***	0.0	9.2
Educational Level																																
Less than compulsory school									1.00	ref.		14.2	1	ref.		16.9									1	ref.		12.6	1	ref.		15.2
Compulsory school									1.30	***	0.06	17.8	1.30	***	0.06	20.9									1.27	***	0.06	15.5	1.26	***	0.1	18.5
High school graduate									1.82	***	0.09	23.2	1.85	***	0.09	27.4									1.93	***	0.09	21.8	1.94	***	0.1	25.8
University degree									3.02	***	0.15	33.4	3.14	***	0.16	39.0									3.45	***	0.17	33.3	3.57	***	0.2	39.1
Family variables																																
Number of children under 16																																
0													1	ref.		16.9													1	ref.		15.2
1													0.88	***	0.02	15.2													0.87	***	0.0	13.5
2													0.77	***	0.02	13.6													0.76	***	0.0	12.0
Number of children under 3																																
0													1	ref.		16.9													1	ref.		15.2
1													0.79	***	0.02	13.8													0.76	***	0.0	12.0
2													0.63	***	0.04	11.4													0.68	***	0.1	10.9
Constant	14.29	***	0.15		13.77	***	0.14		8.63	***	0.62		10.32	***	0.76		10.87	***	0.11		10.81	***	0.11		7.34	***	0.51		8.88	***	0.6	
Log likelihood	-68,539				-68,383				-67,225				-67,050				-63,204				-63,192				-61,918				-61,731			
Wald Chi²	79,513	***			79,215	***			77,142	***			76,833	***			73,548	***			73,526	***			71,218	***			70,890	***		

Statistic Significance= "ns" non significant; " * " error < 0.10; " ** " error < 0.05; " *** " error < 0.01.

Data source: Spanish Labor Force survey, 3rd quarter 2004-3rd quarter 2007 and 3rd quarter 2008-3rd quarter 2011

APPENDIX 2

MODEL 3: RANDOM-INTERCEPT LOGISITC REGRESSION ANALYSIS: PREDICTING THE TRANSITION OF WIVES ENTERING THE LABOR FORCE BY TIME *t* CONTROLLED BY THEIR LABOR FORCE PARTICIPATION AT *t-1* AND THE HUSBAND'S UNEMPLOYMENT BENEFIT

Variables	Crisis (2008-2011)												Expansion (2004-2007)											
	Model 1			Model 2			Model 3			Model 4			Model 1			Model 2			Model 3			Model 4		
	Exp (ß).	S.E.	Prob	Exp (ß).	S.E.	Prob	Exp (ß).	S.E.	Prob	Exp (ß).	S.E.	Prob	Exp (ß).	S.E.	Prob	Exp (ß).	S.E.	Prob	Exp (ß).	S.E.	Prob	Exp (ß).	S.E.	Prob
Previously inactive	0.02 ***	0.00	19.6	0.02 ***	0.00	18.9	***	0.00	14.3	***	0.00	17.0	0.02 ***	0.00	15.7	0.02 ***	0.00	15.6	0.02 ***	0.00	12.6	0.02 ***	0.00	15.2
Area of birthplace																								
Spain	1 ref.		19.6	1 ref.		18.9	1 ref.		14.3	1 ref.		17.0	1 ref.		15.7	1 ref.		15.6	1 ref.			1 ref.		15.2
EU-25	1.01 ns.	0.06	19.7	1.00 ns.	0.05	18.9	0.89 **	0.05	12.9	0.88 **	0.05	15.2	1.13 **	0.07	17.5	1.13 **	0.07	17.4	0.99 ns.	0.06	12.5	0.99 ns.	0.06	15.1
Rest of Europe	1.14 **	0.06	21.8	1.09 ns.	0.06	20.3	0.92 ns.	0.05	13.3	0.89 **	0.05	15.4	1.51 ***	0.11	22.0	1.51 ***	0.11	21.9	1.23 ***	0.09	15.1	1.17 **	0.08	17.3
Africa	0.63 ***	0.03	13.2	0.56 ***	0.03	11.6	0.60 ***	0.03	9.0	0.65 ***	0.04	11.7	0.69 ***	0.05	11.4	0.68 ***	0.05	11.2	0.73 ***	0.05	9.5	0.78 ***	0.06	12.3
Latin America	1.56 ***	0.06	27.6	1.51 ***	0.06	26.1	1.34 ***	0.05	18.2	1.33 ***	0.05	21.3	1.46 ***	0.06	21.5	1.46 ***	0.06	21.3	1.23 ***	0.05	15.1	1.23 ***	0.05	18.1
North America and Oceania	0.62 *	0.18	13.1	0.61 *	0.17	12.5	0.43 ***	0.12	6.7	0.44 ***	0.13	8.3	1.58 ns.	0.55	22.7	1.58 ns.	0.56	22.7	0.95 ns.	0.32	12.1	0.96 ns.	0.32	14.7
Asia	0.64 ***	0.09	13.5	0.63 ***	0.08	12.9	0.60 ***	0.08	9.0	0.59 ***	0.08	10.8	1.08 ns.	0.20	16.8	1.08 ns.	0.20	16.7	0.97 ns.	0.17	12.3	0.97 ns.	0.17	14.9
Husband unemployment benefit																								
Employed				1 ref.		18.9	1 ref.		14.3	1 ref.		17.0				1 ref.		15.6	1 ref.			1 ref.		15.2
Unemployed with benefit				1.50 ***	0.04	26.0	1.72 ***	0.05	22.3	1.73 ***	0.05	26.1				1.17 ***	0.06	17.8	1.33 ***	0.07	16.1	1.33 ***	0.07	19.3
Unemployed without benefit				1.58 ***	0.06	27.0	1.75 ***	0.07	22.5	1.75 ***	0.07	26.3				1.21 ***	0.07	18.4	1.38 ***	0.08	16.7	1.39 ***	0.08	20.0
Socio-demographic characteristics																								
Age at first observation							1 ref.		14.3	1 ref.		17.0							1 ref.			1 ref.		15.2
20-24							1.14 **	0.07	15.9	1.16 **	0.07	19.2							0.96 ns.	0.06	12.2	1.00 ns.	0.06	15.2
25-29							0.99 ns.	0.06	14.1	1.06 ns.	0.06	17.8							0.86 ***	0.05	11.0	0.94 ns.	0.05	14.4
30-34							0.94 ns.	0.05	13.5	0.98 ns.	0.06	16.7							0.82 ***	0.05	10.6	0.87 **	0.05	13.5
35-39							0.92 ns.	0.05	13.2	0.88 **	0.05	15.2							0.87 ***	0.05	11.1	0.83 ***	0.05	12.9
40-44							0.87 **	0.05	12.7	0.77 ***	0.04	13.5							0.81 ***	0.05	10.5	0.70 ***	0.04	11.2
45-49							0.70 ***	0.04	10.4	0.58 ***	0.03	10.6							0.68 ***	0.04	9.0	0.57 ***	0.03	9.2
50-54																								
Educational Level																								
Less than compulsory school							1 ref.		14.3	1 ref.		17.0							1 ref.			1 ref.		15.2
Compulsory school							1.30 ***	0.06	17.7	1.29 ***	0.06	20.9							1.27 ***	0.06	15.5	1.26 ***	0.06	18.5
High school graduate							1.82 ***	0.09	23.2	1.84 ***	0.09	27.3							1.93 ***	0.09	21.8	1.94 ***	0.09	25.8
University degree							3.01 ***	0.15	33.4	3.13 ***	0.16	39.0							3.45 ***	0.17	33.2	3.57 ***	0.17	39.0
Family variables																								
Number of children under 16																								
0										1 ref.		17.0										1 ref.		15.2
1										0.88 ***	0.02	15.2										0.87 ***	0.02	13.5
2										0.77 ***	0.02	13.6										0.76 ***	0.02	12.0
Number of children under 3																								
0										1 ref.		17.0										1 ref.		15.2
1										0.79 ***	0.02	13.8										0.76 ***	0.02	11.9
2										0.63 ***	0.04	11.4										0.68 ***	0.05	10.8
Constant	14.29 ***	0.15		13.78 ***	0.14		8.65 ***	0.62		10.33 ***	0.76		10.87 ***	0.11		10.81 ***	0.11		7.33 ***	0.51		8.86 ***	0.63	
Log likelihood	-68,539			-68,384			-67,229			-67,054			-63,204			-63,194			-61,920			-61,734		
Wald Chi²	79,513 ***			79,217 ***			77,148 ***			76,840 ***			73,548 ***			73,529 ***			71,223 ***			70,894 ***		

Statistic Significance= "ns" non significant; " * " error < 0.10; " ** " error < 0.05; " *** " error < 0.01.

Data source: Spanish Labor Force survey, 3rd quarter 2004-3rd quarter 2007 and 3rd quarter 2008-3rd quarter 2011.