

# Economic stress in *non-poor* Spanish households during the Great Recession

*Non-poor*  
Spanish  
households

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## Abstract

**Purpose** – This paper aims to focus on *non-poor* households that during the Great Recession experienced economic stress (ES). That is, whose economic comfort was reduced taking into account their previous living standards. The paper seeks to determine how the crisis has affected this extensive (and key) social group.

**Design/methodology/approach** – The analysis has been performed in a dynamic way. The *non-poor* households ES situation and its changes are studied throughout the period 2008-2016 by taking the four-year intervals provided by the longitudinal Spanish Living Conditions Survey. The authors discuss and select the circumstances to determine whether ES has occurred. To identify which variables determine the probability of suffering ES the authors use a standard logit model.

**Findings** – The main variable is the tenure status of the dwelling: property with a mortgage or rented multiply the risk of ES by up to 3.5 times. ES falls as the household's work intensity increases. However, an improvement in the employment situation cannot be associated with a reduction in ES probability. The main socio-demographic variables behave as predicted: woman householder, grow in the number of household members and bad health increase the risk of ES, and the higher the level of education of the householder, the lower the risk.

**Originality/value** – There are very few studies regarding the people above the poverty line. Exploring and analyzing the factors determining the sensitivity of the largest part of the population to the crisis is very relevant, as the pace of the economic recovery depends largely on them.

**Keywords** Great Recession, Economic stress, Living conditions survey, *Non-poor* households

**Paper type** Research paper

## 1. Introduction

It is well-known that economic crises are not neutral in terms of the income distribution. The Great Recession and the austerity policies adopted have had a regressive impact on social equity, which has been manifested in the impoverishment of the people with fewer resources. The households at the lowest level of the income distribution have been

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studied and characterised in depth. The consequences in Southern Europe derived from the fiscal adjustment measures, as well as those related to its distributive impact on households, poverty and aggregate demand, have also been analysed. See, for example, the studies by [Guillén et al. \(2016\)](#), [Matsaganis and Leventi \(2014\)](#), [Paulus et al. \(2016\)](#) or [Perez and Matsaganis \(2018\)](#). For the countries of the European Union as a whole, research has been conducted by [Cantillon et al. \(2017\)](#) and [Chzhen \(2016a, 2016b\)](#) in relation to child poverty, [Karamessini and Rubery \(2017\)](#), who focus on the gender perspective or [Leschke et al. \(2015\)](#), who assess the consequences in terms of the objectives of the Europe 2020 strategy.

In Spain, a review of the studies on poverty prior to the crisis can be found in [Arranz and García-Serrano \(2009\)](#), while an extensive synthesis of the more recent contributions has been conducted by [Prieto-Alaiz et al. \(2016\)](#). However, it is also worth mentioning the studies on the incidence of poverty conducted by [Ayala \(2014\)](#), [Ayala et al. \(2011, 2014, 2017\)](#), [Ayllón et al. \(2007\)](#), [Cantó et al. \(2012\)](#), [Pérez-Mayo \(2008\)](#), [García et al. \(2008\)](#) or [Herrero et al. \(2013\)](#). Specifically, the research of [Prieto-Alaiz et al. \(2016\)](#) focussed on the multidimensional measurement of this phenomenon, [Cantó et al. \(2015, 2016\)](#) addressed the relationship between gender and poverty, while [Zugasti and Laparra \(2017\)](#), [Cueto et al. \(2017\)](#) or [Tejero \(2017\)](#), who analysed the geographical disaggregation, mobility and dynamics of situations of poverty, complement those above. Finally, the studies of [Lafuente and Faura \(2012a,b\)](#), which examined the shift from vulnerability to social exclusion, are also of interest.

The above-mentioned studies discuss the situation and measurement of poverty in Spain, addressing different topics related to individuals who live in households suffering from monetary poverty. The contribution of this paper is that it focusses on those households that have never crossed the poverty line and, in general, do not have access to any type of assistance, subsidy or benefit within the framework of the public social protection system, but have experienced the emergence of certain economic stress (ES)[1]. That is, we zoom in on the households (not in poverty) whose economic comfort has been reduced taking into account their previous living standards. There are very few studies regarding the situation of people above the poverty line, and measuring these issues from the point of view of households is fundamental ([Moreno, 2017](#); [Gradin et al., 2017](#)). In the Spanish case, the *non-poor* households constitute a *silent* majority, which has been largely ignored by applied research. The paper seeks to determine how the crisis has affected this extensive *non-poor* group of our society[2]. Exploring and analysing the factors determining the sensitivity of the largest part of the population to the economic crisis is very relevant, as the pace of the economic recovery depends largely on this population group[3].

This analysis of the circumstances of *non-poor* households has not been performed statically but in a dynamic way, which constitutes the second contribution of this paper. The situation and its changes are studied throughout the period 2008-2016 by taking the four-year intervals provided by the longitudinal version of the statistical source used, the *Living Conditions Survey*.

The paper is structured as follows. After briefly describing the data source used, Section 3 defines the group of households to be studied. Section 4 explains the procedure for selecting and designing the household variables used in the subsequent modelling. Section 5 discusses the results of the logit model of the probability of whether a *non-poor* household suffered ES during the Great Recession. The study concludes (Section 6) giving some reasons, which may explain one of the most alarming results of the estimates, that is, the increase in employment does not seem to have reduced the emergence of ES in *non-poor* households. Section 7 includes the main conclusions.

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## 2. Statistical source: Living Conditions Survey (Encuesta de Condiciones de Vida, ECV)

The ECV is an annual survey conducted among Spanish households. It is a statistical operation harmonised under the EUROSTAT initiative called EU-SILC (*European Union-Statistics on Income and Living Conditions*), whose objective is to provide information about the distribution of income and the situation of social inclusion for all of the EU countries for the population living in main private households[4].

The Spanish ECV files are published yearly in two formats: transversal (with information of only one year) and longitudinal (with information about the same households for four-year periods). In the transversal format, the sample is divided into four rotation groups, one of which is renewed each year. Therefore, the time that each subsample remains in the survey does not exceed four years. The longitudinal ECV – from here on, ECVL – provides, theoretically, the information from a quarter of the sample in the first interview – with only one year of the transversal ECV–; the two interviews from another quarter in the second turn – two years of the transversal ECV–; the three surveys based on another 25 per cent in the third ECV wave, and finally, the rest in the last transversal ECV interview and for which there are four observations, one for each year of the longitudinal period.

With each longitudinal wave of the ECV a pure panel of households can be constructed which enables the same people to be followed over time so that the changes in their lives can be studied. As our paper is focussed on the recent economic crisis, we select the period 2008-2016 which is gathered in six ECV longitudinal waves. The first one corresponds to the period 2008-2011 (hereafter, ECVL-2011) and the last one to the years 2013-2016 (ECVL-2016).

## 3. Determining the group of *non-poor* households suffering from economic stress

Our group of interest is formed by (i) *households* interviewed in the four consecutive years; (ii) which at the beginning of each longitudinal period, did not suffer from ES[5] and were not below the annual poverty line and which, at least in the following two or three years -consecutive or otherwise- experienced ES, but (iii) which, from an income point of view, did not fall below the corresponding annual poverty lines. Therefore, the *dependent variable* is based on two conditions regarding the households: that they neither suffer from ES at the beginning of the period nor do they ever fall below the poverty line. The values of this variable, 1 or 0, depend on whether the household has experienced ES two or three years after the initial survey one (1) or not (0).

The pre-condition that the household has been interviewed throughout the four years of each ECVL is guaranteed for the sample of selected households after the filtering of the original microdata files. This cleaning is necessary, as said before, because the households and individuals in the ECVL may have been interviewed on one, two, three or a maximum of four times, depending on the sample rotation system of the transversal ECV and the sample attrition. In particular, there is a starting balanced subsample of an average of 2,500 households in each annual ECVL.

### 3.1 Emergence (or not) of economic stress in the household throughout the period

In the section called *Social Exclusion* of the *Detailed household data* file of the ECVL, 15 questions are asked regarding the situation of material deprivation (MD) and ES. Specifically, the Spanish ECV asks whether the household has been in arrears on mortgage or rental payments and utility bills (electricity, water or gas); or on instalment payments or other consumer loan payments. Information is requested about whether these expenses

represent a heavy financial burden for the household or whether they are affordable. It examines whether the household has the capacity to face unexpected financial expenses and its ability to make ends meet. The household is also asked about its capacity to afford a one-week annual holiday away from home; whether it can afford meat, chicken or fish at least every second day and finally, whether it has a telephone (including mobile), a colour television, computer, washing machine or car.

The majority of these items are used by the EU to measure MD. The concept of MD is based on:

[...] the affordability of a selection of items (goods or services) that are considered to be necessary or desirable for people to have an “acceptable” standard of living in the country where they live (EUROSTAT, 2012).

Given the income group that we want to study (*non-poor* households), our focus is not to measure situations of MD, more typical of households in monetary poverty and that describe situations of much more intense involuntary lacks, but situations of ES. In that sense, not all items described above are suitable to establish the presence of economic stress in the household. We identify several questions that are clearly related to ES, understood as the worsening of the *non-poor* economic situation at a household level, and we drop the items most related to the risk of falling into monetary poverty. For example, not owning (enforced lack of) a telephone, washing machine or colour television seems to be more closely associated with being below the monetary poverty line than the impoverishment of the *non-poor* households. This is similar with regard to delays in payments of the regular household bills (electricity, water, gas or insurance).

We select four circumstances to determine whether ES has occurred or not in *non-poor* households. First, in accordance with the *household capacity to pay the monthly expenses*, there is ES for households which answer: with great difficulty, with difficulty or with some difficulty. Second, if the *total household expenses (including insurance, electricity, community charges, etc.) represent a heavy burden*. Third, if the household *cannot cope with unexpected expenses*, and finally, if it is *unable to afford a one-week annual holiday away from home*.

Two items of our set – the inability of the household to meet unexpected expenses and to afford one week’s holiday away from home – are included in the EU MD definition, but they are considered to be the least related to severe MD[6]. The selected items are very similar to those used by Watson *et al.* (2015), Whelan and Maitre (2013), Whelan *et al.* (2016) or Whelan *et al.* (2017), although not identical. Particularly, making ends meet, housing costs as a heavy burden and inability to meet unexpected expenses are common factors, but arrears on housing or utility bills have been substituted by the inability of the household to afford one week’s holiday away from home.

The situations related to instalment payments or to delays in loan or mortgage payments are not selected for two reasons. First, because if the delays in the payment of mortgages are part of the dependent variable and, at the same time, the housing tenure (in which property with a mortgage is very frequent) is used as an explanatory variable, autocorrelated variables are obtained. And second, because not all households have these expenses. Unlike other EU countries[7], the presence of delays is not very frequent in our sample (only 3.7 per cent of the sample ECLV 2011-2016 suffer any of the three arrears). By contrast, the ability of the household to afford one week’s holiday away from home is an item socially recognized as a necessity by half of the EU-27 population (Guio, 2009, p. 4) and is frequent in our sample (10.7 per cent of households).

The reliability of our ES items was verified using Cronbach’s alpha test. In social science research, a high value of the alpha coefficient is often considered as evidence that the set of

items measures an underlying concept. The average reliability of this measure across all six waves of the ECLV using Cronbach's alpha was 0.79, which shows a satisfactory level. When we include the arrears items in the set, the alpha value is reduced (0.68 on average).

Like Watson *et al.* (2015), we select a simple additive approach in our ES measure because, in contrast to a weighted one, it has the advantage of making the interpretation of the results simpler[8]. A household is defined to be in ES when during a minimum of two of the three remaining years in the ECVL sample it has experienced at least one ES factor. This choice is similar to the standard procedure to identify the risk of persistent poverty in the EU social indicator. We consider that an appropriate criterion for ES emergence is that the household has experienced at least one ES factor. This is adequate because we are trying to capture how *non-poor* households have coped with a *slight* worsening of their economic situation[9].

Table I shows the proportion of households interviewed over the four years of each ECVL who suffer from at least one of the ES selected factors. It can be observed that the most frequent item is that the household expenses become a heavy burden, which is the case for approximately half of them. The other three ES factors have a frequency of occurrence of around 10 per cent.

### 3.2 Condition of non-poverty in the household at the beginning and throughout the period

The second condition is that the households cannot have an income below the poverty line in any year. To determine which households satisfy this condition, it is necessary to calculate the income of each household per consumption unit (CU). Thus, we follow the same procedure as the INE and the EUROSTAT by using the modified OECD scale that gives a weight of 1 to the first adult in the house, a weight of 0.5 to the other adults and a weight of 0.3 to children under 14 years of age.

As the *Income* variables include the amount of total disposable income of the household (HY020) in the year previous to the survey, this income is divided by the household's CUs[10], which also correspond to the previous year. Finally, given the annual CUs poverty lines[11], we compare them with the equivalent income of each household per CU. If it is above the poverty line, the household verifies the second condition.

Table II shows that 70.5 per cent of households are above the poverty line all the ECVL periods. Therefore, the sample used contains 10,284 *non-poor* households, which are those not suffering from monetary poverty in any of the four years of interviews[12]. Of these, approximately half (4,932) do not suffer from ES at any time during the period, while the other half (5,352) declare to have experienced one or more of the four selected ES factors at some subsequent time.

## 4. Explanatory variables used to estimate the probability of the emergence of economic stress in *non-poor* households

The variables used to estimate the probability of a household experiencing economic stress are those usually found in the literature on the risk of poverty[13]. These are described below and are based on the four files of each of the annual ECVL[14].

### 4.1 Demographic variables of the household

\* *Adults (persons aged 16 and over) in the household at the beginning of the ECVL period (COUNT)*: This variable contains information regarding the demographic structure of the household. It is assumed that an abnormally high initial number of adults in the household could be positively related to the emergence of ES, as it is expected that when there are no problems the adults gradually become independent from the households.

**Table I.**  
Proportion of households (sample size) interviewed over the four years with one or more of the selected ES factors. ECVL-2011 to ECVL-2016

	ECVL-2011	ECVL-2012	ECVL-2013	ECVL-2014	ECVL-2015	ECVL-2016	ECVL-2011 to ECVL-2016
% Households unable to keep up with the monthly expenses	9.6	10.2	12.0	16.7	13.9	11.2	12.1
% Households for which domestic expenses represent a heavy burden	46.7	49.3	51.9	53.7	54.4	55.6	51.7
% Households unable to face unforeseen expenses	11.8	9.9	9.3	10.7	9.3	8.8	10.0
% Households which cannot afford to have a holiday one week per year	11.1	10.5	12.1	13.5	9.2	8.2	10.7
Total households	2,750	2,607	2,391	2,167	2,344	2,334	14,593

**Source:** ECVL microdata (INE) and own elaboration

	ECVL-2011	ECVL-2012	ECVL-2013	ECVL-2014	ECVL-2015	ECVL-2016	ECVL-2011 to ECVL-2016 (%)
Total households	2,750	2,607	2,391	2,167	2,344	2,334	14,593
Households never in poverty	1,891	1,822	1,711	1,550	1,672	1,639	10,284
Without ES	1,001	922	801	689	756	763	4,932
With ES	889	900	910	861	916	876	5,352
1 ES factor	604	625	615	512	626	638	3,620
2 ES factors	217	211	216	258	199	163	1,264
3 ES factors	62	57	65	74	70	57	385
4 ES factors	6	7	14	17	21	18	83

**Source:** ECVL microdata (INE) and own elaboration

**Table II.**  
Distribution of the households (sample size) with 4 interviews in accordance with non-monetary poverty and the number of selected ES factors experienced

\* *Variation in the number of adults in the household (VARCOUNT)*: The difference in the number of adults between the first and last year of the ECVL. The number of adults in a household may increase because teenagers have reached 16 years old, because of couple formation or elderly family members joining the household. However, the number of adults may either reflect the return to the household of members who were initially emancipated but returned due to the economic crisis or groups of adults with no family ties living together (labour immigrants) to overcome the recession. The hypothesis here is that an unusual increase in the number of adults may be associated with the emergence of ES.

\* *Number of minors under the age of 16 in the household (CHILDREN)*: In this case, the variable refers to the beginning of the period. This variable may indicate the level of fragility of households, and therefore, their likelihood of experiencing ES, particularly in low-income households. However, the relationship could be the opposite if a greater number of children are associated with high-income households.

\* *Variation in the number of children in the household (VARCHILDREN)*: This variable includes the increase in the number of minors from the first to the last year of each ECVL. It is considered as complementary to the presence of minors at the beginning of the ECVL and, at least in low-income households, it could be associated with a greater risk for the appearance of ES.

\* *Age structure of the household (MEANAGEH)*: The age structure of the household can determine whether it is more susceptible to suffering from ES. This variable is based on the hypothesis that mature households have a lower probability of suffering from ES as they have already incurred the main expenses (housing, vehicle, . . .) in the past, and their income should be more stable. The *average age of the household* is obtained based on the ages of all of the adult members in the same household in the initial year of each ECVL.

\* *Dispersion with respect to the initial mean age of the household (DPMEANAGEH)*: The information regarding the *age of the household* is complemented by the standard deviation from the mean measured in the number of years. The hypothesis related to this variable is that the highest deviations possibly correspond to households with a regrouping of previously emancipated members, which can indicate a greater economic fragility[15].

\* *Sex of the main person of the household (SEXPP)*: The use of this variable is based on the hypothesis that when the householder is a woman, there is a higher probability of ES because of the wage and occupational gap between men and women, and also because of the greater frequency of single-female-parent homes. The selected variable is the *sex of the main person responsible for the household* at the beginning of each period, which according to the [INE \(2013, pp. 43-44\)](#), is the owner of the property or the signer of the rental agreement.

\* *Level of education of the main person of the household (EDUCAPP)*: The reason that justifies the inclusion of this variable is that a householder with a higher level of education has a lower probability of suffering from ES as he/she is able to get a better job, and, in general, this is associated with a higher level of education of the other members of the household.

\* *Severe worsening of the health of household members (BADHEALTHH)*: As pointed out by [Fusco et al. \(2010\)](#) or [Guio et al. \(2012\)](#), the relationship between health status and poverty, deprivation or ES can go in both directions. Health problems can impact on permanent income, and lead to greater deprivation and ES or, conversely, people suffering from poverty, deprivation or ES have a higher probability of developing health problems[16]. However, [Fusco et al. \(2010, p. 34\)](#) found that in each of the 25 EU countries, the presence of at least one person in bad health (self-defined status) in the household seems to have no significant impact on the risk of income poverty, but it does have an impact on the risk of deprivation.

In our case, we have defined the household health variable as the sum of the times that household members have gone from a self-declared health status of very good, good or fair to bad or very bad. The hypothesis is that households can start to suffer from ES when one of its members experience a serious health disorder[17].

#### 4.2 Employment variables of the household

\* *Initial employment intensity in the household (EMPLH)*: Several options have been examined to analyse the relationship between the household employment situation and the probability of suffering from economic difficulties. Initially, the employment situation of either the main adult or the two main adults interviewed was considered. However, these options do not take into account the situation of the rest of the adults in the household. Therefore, it was decided to measure the work intensity of the household through the proportion between the number of persons aged 16 and over who declared themselves to be employed and those who could be employed in each household[18].

This ratio, calculated for the first year of each ECVL, takes a maximum value of 1 (all members are employed) and a minimum value of 0 (no member is employed). Furthermore, to avoid any negative bias in the measurement of the real household work intensity, the adults of 16 years of age and over who are studying have been removed from the denominator.

\* *Increase in the employment intensity of the household (VAREMPLH)*: It is assumed that an increase in the household work intensity can prevent the emergence of ES. Thus, the number of increases in the household work intensity over the ECVL period has been calculated. This variable takes a minimum value of 0 –if no increase has occurred– and a maximum of 3 –if the increases have occurred in all of the years–.

\* *Initial unemployment intensity in the household (UNEMPLH)*: The variable is similar to that used for employment, although in this case, the interpretation is the opposite: the higher the value of the ratio, the worse the situation (all of the members of the household who could be working are unemployed). Contrary to the initial employment intensity, the denominator in this ratio is not the total number of potential active members of the household, but those members who declare themselves to be active. This is due to the indeterminate value of the ratio when there are no active members[19].

\* *Increase in the intensity of unemployment of the household (VARUNEMPLH)*: In the same way as changes in the work intensity are taken into account, changes in the intensity of unemployment in the household over the four ECVL years are also considered as relevant. Hence, the number of increases in the household unemployment intensity over the ECVL period has been calculated. If unemployment intensity has not increased in the household in any year, the value will be zero, and if the intensity of unemployment has increased among the members of the household in one, two or three years, the variable will take the corresponding value.

\* *Initial intensity of the retirement situation in the household (RETIREDH)*: Having a secure income, such as a pension due to retirement or a non-contributory pension, have constituted one of the ways to overcome the negative effects of the crisis, either because the recipients are paid a fixed income for their personal use or because they share it with their descendants, rescuing them from fragile economic situations[20]. We include this possibility by calculating the *intensity of the presence of a situation of retirement in the household*, understood as being associated with a lower probability of the household experiencing ES.

As in the case of employment and unemployment, the intensity of the presence of retirement in the home is incorporated in relative terms, that is, calculating the ratio between the retired members and the total number of household members aged 16 and over. The

ratio takes its minimum value “zero” when no members of the household are retired and its maximum value “one” when all of the members are in this situation.

#### *4.3 Economic and geographical variables of the household*

\* *Income group (IG)*: Based on the prior calculation of the household’s disposable income per CU in the first year of each ECVL, the variable referring to the initial income group of the household has been constructed. The hypothesis is that a household is more likely to experience future ES when the initial income levels are lower. Therefore, the IG variable is created using a scaling of the CU equivalent annual income per household in four intervals which are based on multiples of the median equivalent annual income[21]. The household is assigned to the lowest income group (IG = 1) when its income is between 60 per cent and 149 per cent of the median; it is classified as middle income group (IG = 2) when its income takes a value of between 150 per cent and 349 per cent of the median; it is in the upper-middle income group (IG = 3) when it is between 350 per cent and 550 per cent of the median, and finally, it is classified as being an upper income group (IG = 4) when it is higher than 550 per cent.

\* *Variation in the household income (VARINCOME)*: To incorporate changes in CU income in the model we have used a variable that reflects its relative variation, recoded by intervals as follows: increase of over 50 per cent on the initial income (VARINCOME = 5); relative increase between 20 per cent and 50 per cent of the initial income (VARINCOME = 4); relative variation between +20 per cent and –20 per cent of the initial income (VARINCOME = 3); relative reduction between 20 per cent and 50 per cent of the initial income (VARINCOME = 2), and finally, relative reduction greater than 50 per cent of the initial income (VARINCOME = 1). The hypothesis for this variable is that its increase will reduce the probability of the household experiencing ES.

\* *Getting assistance from other households (INCOTHERH)*: The availability of income periodically transferred from other households can be associated with a situation of economic fragility of the household and become a factor related to the probability that it may suffer from ES (highly possible in single-parent homes, households with divorced or separated parents with dependent children or students). Based on the ECVL variable *gross periodical monetary transfers from other households throughout the previous year*, its values range from a minimum of 0 to a maximum of 3 years, as it only contemplates this extra income from the second year of each ECVL.

\* *Tenure status of the household (DWELLING)*: The use of the variable *tenure status of the household* at the beginning of each ECVL period is supported by the assumption that the impact of the crisis and the risk of suffering from ES differs depending on how the households manage this fundamental expense in the family budget. The ECVL provides this variable with five options: owned – with or without a mortgage; rented – at market price or at less than market price – and, finally, lent free of charge. The main hypothesis is that an owned property with a mortgage or a rented property at the market price represents a major expense, and therefore, these two tenure categories should have the greatest impact on the probability of a household suffering ES.

\* *Region of residence of the household (REGION)*: The REGION variable at the beginning of each ECVL period is incorporated into the models, to take into account the fixed geographic effects derived from residing in one region or another and, most of all, the possibility of local social policies mitigating the effects of other variables (such as unemployment or the tenure status of the property) on the probability of a *non-poor* household suffering from ES.

## 5. Logit estimates of the probability of a *non-poor* household experiencing economic stress

Both logit and probit models are usually used to link a dichotomous dependent variable to a series of explanatory variables. We select the first one because it seems more appropriate for the data used and also less complex in terms of the management and interpretation of the results[22]. The logit regression model takes the following form:

$$y_j = f(x_j' \beta) + u_j, \quad j = 1, \dots, n,$$

where for each household  $j$  in each ECLV, the probabilities when the dependent variable takes the value of 1 (the household will end up experiencing ES) and 0 (the household will not suffer any ES), conditional to a set of explanatory variables, are:

$$\Pr(y = 1|x = x_j) = \frac{\exp(x_j' \beta)}{1 + \exp(x_j' \beta)}$$

$$\Pr(y = 0|x = x_j) = \frac{1}{1 + \exp(x_j' \beta)}$$

The proposed models in Sections 5.1 and 5.2 have incorporated the 4-year ECVLs dynamic through a longitudinal approach. To do this, the ECVL files have been restructured so that in the same row – person or household – all the information from their 4 interviews is collected. Once this has been done, the corresponding variables have been used in their initial values and in their variation throughout the period. In this way, a time horizon of four years can be evaluated, the maximum allowed by the longitudinal survey[23].

The majority of the records discarded for including only one, two or three interviews will be retrieved in the subsequent ECVLs, when they complete their fourth turn. For the period analyzed, only those in the first interview of the ECVL-2014, the ECVL-2015 and the ECVL-2016 will be out of our estimates[24]. Therefore, it is understood that the bias generated by choosing only records with four interviews, if any, is very small.

Finally, it should be noted that the ECVLs have a truncation problem because individuals/households can only be observed over a maximum of four years, and it is not known what happens before or after they leave the sample. This limitation results from the temporal structure of the ECVL. However, whether or not truncation is a problem will depend on the focus of the research. Here we analyze what happened throughout the crisis with *non-poor* households, and we consider that the four years of each of the six ECVLs reflect the 2008-2016 period well, which is precisely what we want to analyze[25].

### 5.1 Basic annual model

Table III shows the results of each of the six logit regressions of the model estimated to determine the annual incidence of the selected variables on the probability that the *non-poor* households experience ES. For all waves of the ECVL, the logit regression model is statistically significant.

As is usually the case in this type of discrete choice model, the goodness of fit tests based on synthesised measurements such as McFadden's pseudo  $R^2$  are not excessively high[26]. In our case, the model improves the log-likelihood between a maximum of 17 per cent

**Table III.**  
Logit estimates of the probability that a *non-poor* household experiences ES

	ECVL-2011 EXP(B)		ECVL-2012 EXP(B)		ECVL-2013 EXP(B)		ECVL-2014 EXP(B)		ECVL-2015 EXP(B)		ECVL-2016 EXP(B)			
	Lower	Upper												
COUNT	0.981	0.979	1.331	1.328	1.434	1.064	0.817	0.815	0.936	0.934	0.938	0.904	0.902	0.907
VARCOUNT	1.546	1.541	1.422	1.418	1.426	1.216	1.284	1.281	1.288	1.597	1.602	1.312	1.308	1.316
CHILDREN	1.030	1.028	1.032	1.033	1.033	1.278	1.283	0.930	0.934	1.313	1.310	0.960	0.958	0.963
VARCHILDREN	1.208	1.204	1.211	1.361	1.357	1.303	1.046	1.043	1.050	1.031	1.028	1.285	1.282	1.289
MEANAGEH	0.976	0.976	1.000	1.000	1.001	1.011	0.998	0.998	0.999	1.001	1.000	1.006	1.006	1.007
DFMEANVAGBH	1.002	1.002	0.992	0.992	1.001	1.001	1.017	1.017	1.017	1.027	1.027	1.036	1.036	1.036
SEXPP ( <i>ref:catag.:man</i> )														
Woman	1.130	1.127	1.162	1.159	1.166	1.274	1.271	1.386	1.382	1.152	1.148	1.214	1.210	1.217
EDUCAPP	0.837	0.836	0.838	0.904	0.903	0.766	0.766	0.831	0.830	0.827	0.826	0.807	0.806	0.808
BADHEALTHH	1.801	1.795	1.808	1.587	1.581	1.593	1.415	1.450	1.460	1.303	1.299	1.612	1.607	1.618
Owned with mortgage														
Owned with mortgage	2.017	2.009	1.767	1.761	1.774	1.818	1.811	1.824	1.886	2.911	2.899	3.443	3.429	3.456
Rented at market price	1.252	1.245	1.260	1.679	1.669	1.689	1.457	1.448	1.466	2.432	2.432	1.521	1.513	1.529
Rented at less than market price	1.558	1.542	1.574	1.569	1.555	1.584	0.804	0.796	0.812	1.072	1.072	1.772	1.748	1.797
Lent free of charge	0.841	0.836	0.846	0.426	0.423	0.429	0.557	0.553	0.560	1.110	1.104	1.117	0.850	0.844
IC	0.465	0.463	0.466	0.465	0.454	0.456	0.538	0.536	0.539	0.392	0.391	0.370	0.379	0.378
VARINCOME	0.819	0.817	0.820	0.867	0.865	0.868	0.812	0.811	0.814	0.829	0.828	0.693	0.900	0.903
INCOOTHERH	1.529	1.520	1.537	2.629	2.613	2.645	2.083	2.073	2.093	1.378	1.372	1.384	1.080	1.077
UNEMPLH	1.228	1.218	1.239	1.237	1.228	1.247	2.016	2.002	2.031	0.926	0.919	0.932	1.024	1.017
VARUNEMPLH	1.893	1.887	1.898	1.325	1.322	1.329	1.464	1.460	1.468	1.718	1.713	1.724	1.968	1.961
EMPLH	0.333	0.330	0.335	0.592	0.588	0.596	1.200	1.193	1.208	0.849	0.843	0.854	0.429	0.426
VAREMPLH	1.032	1.028	1.035	1.106	1.102	1.109	0.880	0.877	0.883	1.514	1.509	1.519	0.912	0.909
RETIREDH	0.713	0.709	0.718	1.276	1.268	1.285	1.032	1.025	1.038	1.053	1.046	0.739	0.734	0.885
REGION OF RESIDENCE ( <i>ref:catag.: Canary Islands</i> )														
Gaïcia	1.291	1.288	1.393	1.379	1.406	2.362	2.343	2.381	0.942	0.933	0.951	0.517	0.512	0.726
Asturias	0.370	0.366	0.374	0.876	0.866	1.515	1.499	1.530	0.450	0.445	0.455	0.260	0.257	0.263
Cantabria	0.531	0.524	0.539	0.954	0.940	0.967	1.869	1.843	1.896	0.647	0.637	0.658	1.033	1.038
Basque Country	0.911	0.902	0.919	0.669	0.662	0.675	1.504	1.491	1.516	1.139	1.128	1.150	0.416	0.411
Navarra	0.461	0.455	0.467	0.502	0.495	0.508	1.560	1.542	1.578	1.101	1.087	1.115	0.187	0.185
La Rioja	0.558	0.548	0.568	1.138	1.119	1.157	1.489	1.467	1.512	1.157	1.138	1.177	0.423	0.416
Aragon	0.422	0.418	0.427	0.982	0.972	0.993	1.467	1.453	1.481	1.052	1.041	1.063	0.443	0.438
Madrid	1.409	1.398	1.421	1.738	1.722	1.754	3.118	3.097	3.140	1.398	1.386	1.411	0.870	0.862
Castilla y Leon	0.698	0.692	0.704	1.033	1.023	1.043	1.00*	0.994	1.009	0.677	0.671	0.684	0.601	0.595
Castilla-La Mancha	0.459	0.454	0.463	0.938	0.948	0.968	1.364	1.352	1.376	1.612	1.606	0.618	0.522	0.511
Extremadura	0.366	0.361	0.371	0.573	0.566	0.581	1.436	1.420	1.452	0.888	0.887	0.468	0.468	0.468
Catalonia	1.045	1.037	1.053	1.420	1.407	1.433	3.653	3.628	3.678	1.444	1.431	1.456	0.699	0.693
Valencian Region	0.661	0.655	0.666	1.154	1.143	1.164	1.998	1.983	2.012	1.152	1.142	1.162	0.529	0.524

(continued)

	ECVL-2011		ECVL-2012		ECVL-2013		ECVL-2014		ECVL-2015		ECVL-2016	
	Exp(B)	Upper										
Balearic Islands	1.579	1.561	1.423	1.407	1.462	1.447	1.478	1.478	2.945	2.910	2.981	2.981
Andalusia	0.824	0.817	2.487	2.465	2.239	2.223	2.254	0.888	0.888	0.881	0.886	0.886
Murcia	0.618	0.611	1.782	1.761	3.336	3.301	3.372	1.259	1.244	1.275	1.275	1.275
Ceuta	1.165	1.125	1.206	1.206	6.090	5.683	3.312	7.420	6.873	8.012	0.267	0.258
Mejilla	1.361	1.318	1.404	1.318	1.846	1.780	1.872	1.380	1.338	1.423	0.022	0.020
Constant	18.808		1.252		0.653			6.127		11.580		3.257
N		1.880		1.822		1.771		1.550		1.672		1.639
% initial cases correctly classified		51		50		55		58		57		55.3
initial-Z Log Likelihood		14,979,957		14,690,940		15,473,721		15,173,815		15,104,416		15,227,532
-2 log likelihood model		12,783,797		12,835,856		13,581,084		13,284,476		12,540,701		12,918,283
McFadden Pseudo $R^2$		0.15		0.13		0.12		0.12		0.17		0.15
% cases correctly classified		69		67		66		69		70		71
HD = 0		70		68		57		52		58		62
HD = 1		68		66		74		82		79		78
▲ in % cases correctly classified		18.60		16.70		11.50		11.40		12.50		12.50

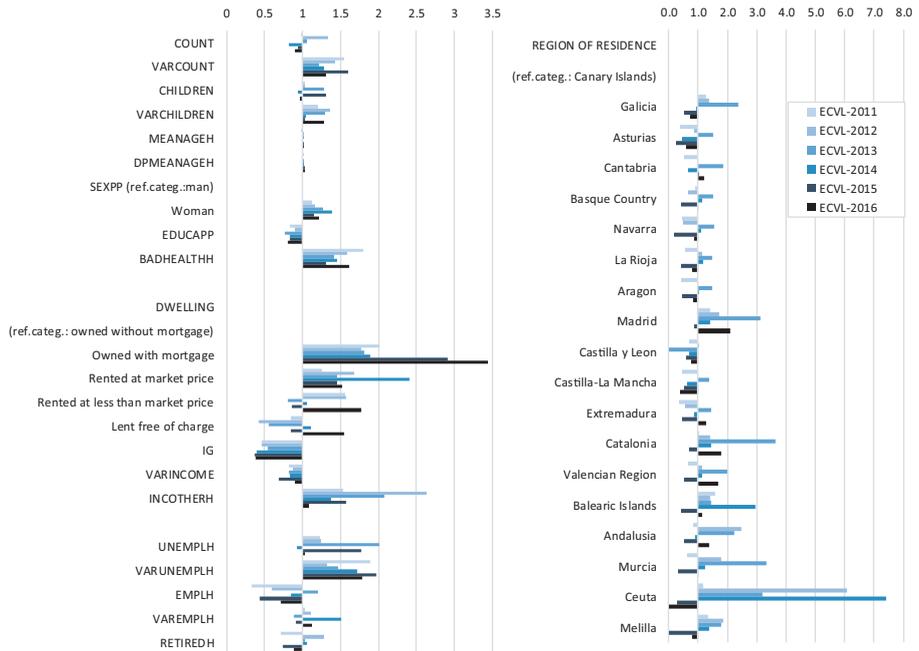
Notes: Annual estimates ECVL-2011 to ECVL 2016; \* *p-value* (Sig.)  $\geq 0.05$   
Source: ECVL microdata (INE) and own elaboration

Table III.

(ECVL-2015) and a minimum of 12 per cent (ECVL-2013 and ECVL-2014) as it includes the explanatory variables. Furthermore, in the best of cases, 71 per cent (ECVL-2016), and in the worst of cases, 66 per cent (ECVL-2013) of households were classified correctly.

Overall, from a quantitative point of view (Figure 1), the variable most intensively associated with *non-poor* households experiencing economic difficulties is the property tenure in the categories of ownership with a mortgage or renting at market prices (multiplying the risk by almost 3.5 times). An equally high impact can also be observed in the income received from other households and in the rise in unemployment intensity throughout the four-year period of each ECVL. Furthermore, the probability of suffering ES increases to 53 per cent if there is someone in the household who has suffered a serious worsening of their health status; increases to 22 per cent if the main person is a woman and if the number of children has risen. In addition, the probability of encountering economic difficulties increases to 40 per cent if the number of adults in the household has risen. Although in this case the direction of causality cannot be established, the relationship could be explained by the regrouping of adults in the household either for family reasons – children returning home – or labour immigrants who have to share a dwelling due to the harshness of the crisis[27].

At the other extreme, the risk of a *non-poor* household suffering from ES is 57 per cent lower if it is in a high-income group at the beginning of the period; and a little less – 32 per cent – if the household has a high initial rate of employment. The risk is reduced by around 18 per cent if there is an improvement in the household income and, almost in the same proportion, 17 per cent, if the main person has a high level of education.



**Figure 1.**  
Odds ratios

**Note:** Annual estimates of parameters Table III. ECVL-2011 to ECVL 2016  
**Source:** ECVL microdata (INE) and own elaboration

With regard to the household labour situation, the asymmetry in the intensity of the effects of employment and unemployment is noteworthy. While starting the period with a high level of unemployment – or experiencing increases in its intensity – clearly increase the risk of ES, as would be expected, the impact of employment is lower and more unstable. It is true that while initially enjoying a favourable employment intensity slightly reduces the probability of suffering ES, the improvement in the intensity does not generate appreciable reductions in this risk and sometimes even increases it.

Finally, the fixed effects corresponding to the household's region suggest that regional homogeneity does not exist[28]. Compared to the reference category (Canary Islands), the risk of suffering from ES increases in Catalonia, the Balearic Islands, Andalusia, Murcia and Madrid, all of which are regions with high population densities and a strong presence of foreign immigrants. A similar situation can be observed in Ceuta and, to a lesser extent in Galicia and Melilla, although only for the ECVLs of 2011 to 2014. In almost all of the remaining regions, the probability of the household experiencing economic difficulties is lower.

### 5.2 Aggregated model and interactions between variables for the whole period

Table IV contains the second group of estimates using all sample household observations. In this case, we can observe the behaviour of the model over time, as well as how some estimations change when interaction terms are included.

The first estimation shows that, in general, the results reported for the six annual ECVLs remain the same for the aggregated specification. Again, an improvement in the household employment intensity cannot be associated with a reduction in the probability of the household suffering from ES. On the contrary, when employment intensity rises, the risk of suffering from ES increases. This result may be related to the low quality and precariousness of newly-created jobs over the period analysed.

In relation to the time fixed effects, it may be observed that compared to the ECVL-2011, which is the reference category, the more recent the ECVL period considered, the higher the probability of a *non-poor* household suffering from ES. This result could indicate that suffering economic difficulties is easier over time and that the duration of the crisis depletes the household's "reserves". It also shows that despite the economic recovery in recent years, and overall high probability of experiencing difficulties still prevails. This indicates that these presumed improvements are not being enjoyed by the majority of the population.

The distribution of some explanatory variables between households with and without ES, depends on the categories of other covariables. This is the reason why the interactions between some selected independent variables (SEXPP, VAREMPL, DWELING and IG) were explored. Basically, in *Estimation 2* we include the interactions between the increase in the household employment intensity and the main person gender, between the income group and the increase in the number of both children and adults and, finally, between the income group and the tenure status of the household.

With these interactions, the aggregate model does fit a little better, and although there are no substantial changes compared to the results of the first model, they are nuanced. The interaction term VAREMPL\*SEXPP shows that the increase in the likelihood of the household suffering from ES when employment grows is much greater if the main person is a woman. This result highlights the greater fragility of employment in "female" households and, once again, the difficulties to eliminate ES in households because of the low quality of new jobs.

Interaction terms in which the effect of the explanatory variable depends on the household income group have only been distinguished between the first income group (IG

**Table IV.**  
Logit estimates of the probability that a *non-poor* household experiences ES

	Estimation 1			Estimation 2		
	Exp(B)	EXP(B)		Exp(B)	95% C.I. for EXP(B)	
		Lower	Upper		Lower	Upper
COUNT	1.015	1.014	1.016	1.016	1.015	1.017
VARCOUNT	1.362	1.360	1.363	1.422	1.420	1.425
CHILDREN	1.079	1.078	1.078	1.073	1.072	1.073
VARCHILDREN	1.175	1.174	1.177	1.255	1.253	1.257
MEANAGEH	0.999	0.999	0.999	0.999	0.999	0.999
DPMEANAGEH	1.010	1.010	1.010	1.009	1.009	1.010
SEXPP (ref.categ.:man)						
Woman	1.223	1.221	1.224	1.163	1.162	1.165
EDUCAPP	0.825	0.825	0.826	0.826	0.825	0.826
BADHEALTHH	1.481	1.479	1.483	1.483	1.481	1.485
<i>DWELLING (ref.categ.: owned without mortgage)</i>						
Owned with mortgage	2.176	2.173	2.180	2.096	2.092	2.101
Rented at market price	1.488	1.484	1.491	1.302	1.297	1.307
Rented at less than market price	1.157	1.152	1.162	1.272	1.265	1.279
Lent free of charge	0.822	0.820	0.824	0.896	0.892	0.899
IG	0.446	0.446	0.447	0.660	0.658	0.662
VARINCOME	0.819	0.819	0.820	0.823	0.822	0.823
INCOTHERH	1.510	1.508	1.513	1.517	1.515	1.520
UNEMPLH	1.249	1.246	1.253	1.232	1.229	1.236
VARUNEMPLH	1.623	1.621	1.625	1.614	1.612	1.616
EMPLH	0.632	0.630	0.634	0.633	0.631	0.634
VAREMPLH	1.074	1.072	1.075	1.004	1.002	1.005
RETIREDH	0.879	0.877	0.881	0.876	0.874	0.878
<i>Interactions</i>						
VAREMPLH*SEXPP (woman)				1.224	1.221	1.227
VARCHILDREN*IG (2,3,4)				0.872	0.870	0.874
VARCOUNT*IG (2,3,4)				0.889	0.887	0.901
DWELLING (owned) *IG (1)				1.516	1.510	1.521
DWELLING (owned+mortgage) *IG (1)				1.631	1.624	1.637
DWELLING (rented n.p.) *IG (1)				1.810	1.800	1.820
DWELLING (other) *IG (1)				1.347	1.340	1.354
<i>REGION OF RESIDENCE (ref.categ.: Canary Islands)</i>						
Galicia	1.147	1.143	1.151	1.126	1.122	1.130
Asturias	0.634	0.631	0.637	0.629	0.626	0.631

(continued)

	Estimation 1		Estimation 2	
	Exp(B)	EXP(B)	Exp(B)	95% C.I.for EXP(B)
	Lower	Upper	Lower	Upper
Cantabria	1.053	1.047	1.034	1.028
Basque Country	0.927	0.923	0.924	0.921
Navarra	0.702	0.698	0.696	0.692
La Rioja	0.927	0.921	0.911	0.905
Aragon	0.859	0.855	0.851	0.848
Madrid	1.762	1.757	1.749	1.743
Castilla y Leon	0.849	0.846	0.836	0.833
Castilla-La Mancha	0.714	0.711	0.703	0.701
Extremadura	0.838	0.834	0.822	0.818
Catalonia	1.584	1.579	1.565	1.560
Valencian Region	1.183	1.179	1.169	1.165
Balearic Islands	1.388	1.382	1.371	1.365
Andalusia	1.274	1.270	1.264	1.260
Murcia	1.125	1.120	1.098	1.093
Ceuta	1.422	1.399	1.386	1.363
Melilla	0.951	0.938	0.924	0.911
<i>ECVL (ref.categ: ECVL-2011)</i>				
ECVL-2012	0.996	0.994	0.998	0.996
ECVL-2013	1.184	1.181	1.188	1.185
ECVL-2014	1.372	1.369	1.376	1.374
ECVL-2015	1.418	1.415	1.425	1.422
ECVL-2016	1.460	1.458	1.471	1.468
Constant	2.799		1.296	
<i>N</i>				
% initial cases correctly classified		10.284		10.284
Initial-2 log likelihood		54		54
-2 log likelihood model		90.923.056		90.923.056
MCFadden Pseudo $R^2$		79.939.991		79.819.735
% cases correctly classified		0.12		0.12
HD = 0		67		67
HD = 1		59		59
▲in % cases correctly classified		74		74
		12.80		12.90

**Note:** Overall period ECVL-2011-ECVL 2016  
**Source:** ECVL microdata (INE) and own elaboration

Table IV.

between 60-149 per cent of the median equivalent income) and the rest. Thus, the coefficients of the estimates for  $VARCHILDREN*IG$  and for  $VARCOUNT*IG$  show the change in the probability of ES occurrence when the household does not belong to the lowest income group. It can be seen that in both cases the probability of suffering from ES is reduced in the case of households with higher CU income. This indicates, therefore, that the negative impact of the increase in the number of adults in the household and/or the number of children, is concentrated in the lowest-income households. The last interaction term between dwelling tenure status and the IG exhibits that in the lowest income group, the fact of being a homeowner with a mortgage slightly increases the probability of ES.

## 6. Why has the increase in employment not reduced the emergence of economic stress?

One of the most worrying results of the above-described estimates is that *the improvement in the employment situation of the members of the non-poor households cannot be strongly associated with a reduction in the risk of ES*. While a relatively high initial work intensity in the household protects against difficulties, access to newly-created jobs during the years of the crisis does not prevent the emergence of the ES. In the joint sample of the ECVL-2011 to ECVL-2016, most of the households in which employment increased (78 per cent) did not experience a simultaneous growth in their income by CU. Specifically, the income remained at the same level in 49 per cent and decreased by 29 per cent.

In fact, this result is similar to that obtained in the analysis regarding the role the labor market transitions with exits from the risk of poverty in the EU before (Cantillon, 2011; Marx *et al.* (2012) and throughout the crisis (European Commission 2016a, b; Thévenot, 2017 or Herrero *et al.*, 2018). Specifically, the European Commission (2016a, b) found that reductions in unemployment contribute to a drop in poverty levels, but only half of the poor who find a job escape poverty. In Spain, 62 per cent of the poor who obtained a job continued in poverty in 2008-2009, while this percentage remained at 49 per cent in 2011-2013.

Thévenot (2017) analyzed if finding a job is associated with exits from the risk of poverty in the EU 2010-2011. His results show that transitions to employment do not necessarily result in exits from the risk of poverty. Again, only half the individuals switching from non-employment to employment escape the risk of poverty at the same time (58 per cent in the Spanish case). Finally, Herrero *et al.* (2018) in their analysis of the labor market and income in Spain 2007-2013, showed the existence of regions in which employment has recovered clearly, but without growth in income. That fact, as they said, can be associated with the low quality of employment growth created in recent years, as well as the persistence of long-term unemployment. In general, as the European Commission (2016b) or Thévenot (2017) state, there are two clear reasons that explain why finding a job does not guarantee exit from poverty: the quality of the job found (type of contract, working hours and wages) and the household composition.

As a result, it seems appropriate to study the new jobs found by members of households in which work intensity has grown. Using the variable of *most recent change in the activity status of the individual*, it has been found that 1,935 individuals who were unemployed or inactive declared that they had found employment during the same year in which the household experienced an increase in work intensity. Figure 2 shows some selected characteristics of these jobs: the type of contract (temporary), the number of hours worked per week in the main job (more than 40), and finally, the reason for changing the job in the past 12 months (compelled because of contract termination, business reasons such as closure, too many employees, etc.). The weight of these characteristics is determined

according to the allocation of households to groups of either *non-poor* households, which do not suffer from ES, households which do, and, finally, households, which have fallen into monetary poverty during the ECVL period.

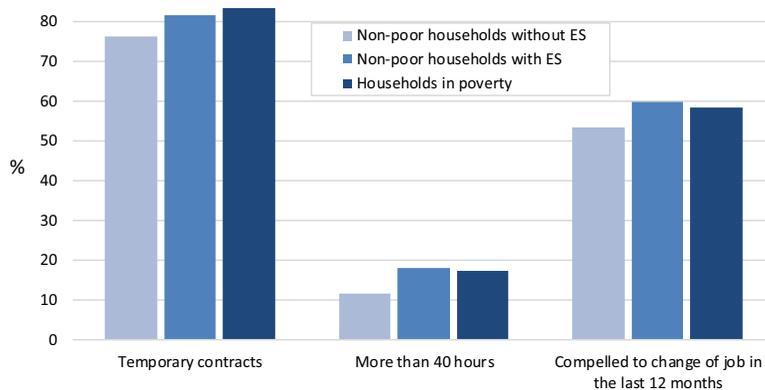
It can be observed that the percentage of individuals who obtain a job and belong to households not suffering from difficulties is associated with a lower frequency of temporary contracts. In addition, the higher quality of the new employment for people in this household group can be observed in the lower weight of the new jobs with more than 40 hours per week. Finally, in this same group, there is a lower incidence of changes in jobs for involuntary reasons[29].

These three results provide good reasons why in many households the quality of the new job does not prevent the emergence of ES and/or monetary poverty, particularly, in households with low initial levels of employment.

Moreover, the external information regarding wages[30] associated with the jobs created during the crisis indicates a significant decrease in their levels. Using data from the Spanish *Labour Force Survey*, the [Bank of Spain \(2017\)](#) has calculated a negative wage gap for new entrants of around 24 per cent in the period 2006-2015. This gap can be partially explained by the differences in the observable characteristics of the new workers – sex, age, education, nationality – and those already present in the labour market – sector of activity and size of firm –, although this stands at around 12 per cent on average, once the impact of these differences on wages has been deducted. Using the Spanish *Continuous Work History Sample* compiled by the Spanish Social Security system, [Fernández Kranz \(2017\)](#) also finds this decrease in the wages of newly-employed workers between 2008 and 2015 and argues that the principal explanatory factor is that the labour market pays less (between 5.4 per cent and 9.9 per cent) for the same type of both job and person.

## 7. Conclusions

This research focusses on households that during the Great Recession experienced economic stress but without crossing the poverty line. Using the Spanish ECVLs during the period 2008-2016, it seeks to identify which variables determine the probability of a *non-poor* household suffered ES. Our results reveal that the variable that has most influenced the



**Note:** Sample of selected individuals, ECVL 2011-2016 (%)

**Source:** ECVL microdata (INE) and own elaboration

**Figure 2.**  
Selected characteristics of the new jobs per household group

probability of suffering ES is the property tenure status. Households living in properties with either a mortgage or which are rented at market prices multiply their risk by up to 3.5 times. The high cost of housing in Spain at the end of the property boom period, together with the rigidity of mortgage commitments place enormous pressure on many households whose income levels went down as a consequence of the crisis.

The above variable is followed in importance by the effects of the employment and the income group variables. The household risk of suffering from ES falls significantly the higher its work intensity at the beginning of the period, the higher its income group or if there have been increases in the household income. However, while initial high work intensity protects the household from experiencing difficulties, access to newly-created jobs during the years of the crisis does not prevent the appearance of ES. The improvement in the employment situation of the *non-poor* household members cannot be strongly associated with a reduction in the risk of ES. This result in Spain is related to the low quality and precariousness of newly-created jobs during the period analysed. This constitutes a topic to be researched in-depth in the near future and could also be extended to other neighbouring countries.

With respect to the socio-demographic variables, these behave as predicted. If a woman is a householder, the risk of suffering from ES increases. It also increases if one or more members of the household have experienced a serious worsening in his/her health status and if the number of children and the number of adults in the household has grown. Finally, the higher the level of education of the main person, the lower the risk.

However, when the selected interaction terms are included in the aggregated model, the increase in the likelihood of the household suffering from ES is much greater when the employment has grown up in a household where the main person is a woman. Moreover, the probability of suffering ES derived from the increase in the number of adults and children in the household is strongly concentrated in the lowest income households.

Our analysis suggests that with regard to fixed effects, there is no regional homogeneity and the time variables indicate that the more recent the ECVL period considered, the higher the probability of *non-poor* households suffering from ES. The persistence of the recession has gradually led to the household's reserves running out. Thus, recovery from the economic crisis has not yet reached the majority of Spanish society. This result is reinforced by the survey carried out by the FOESSA Foundation in 2017, which reveals that only 27 per cent of Spanish households are experiencing the effects of the economic recovery and that the evolution of living conditions is not as positive as could be expected (FOESSA, 2017). In relation to this, it would be interesting to investigate the determinants of households' exit from ES in the future to give a more complete picture of the ES dynamics.

## Notes

1. The literature around the ES concept uses the terms of financial/economic strain, financial/economic stress, financial/economic hardship, financial difficulties or inability to cope financially indistinctly (French and Vigne, 2019). Like Whelan and Maître (2007, p. 162), we use the label ES, rather than economic strain because EUROSTAT uses the latter term for something closer to the basic deprivation index consistent with poverty (EUROSTAT, 2019).
2. In Spain, 70.5 per cent of the households studied are always above the poverty line.
3. About the role of the middle income group in developed economies see, for example, the Pew Research Center (2017) report.
4. See INE (2013) for the specific methodology in the Spanish ECV.

5. Section 3.1 defines the ES factors and explains in what circumstances a household is considered to be suffering from economic stress.
6. [Guio \*et al.\* \(2012\)](#), p. 52) and [Guio \*et al.\* \(2017\)](#), p. 35).
7. For example, for Ireland the percentage of people with arrears (mortgages, rent, utility bills or hire purchase) rises to 17% on average (ECV, 2008-2017), so this item is relevant to identify ES there – as [Whelan \*et al.\* \(2016\)](#) did – but not in Spain. If we were to compare countries, the items would be identical and the differences in their prevalence must be solved through a weighting procedure (see below).
8. If a household suffers two ES factors, our index always equals 2. On the contrary, the ES value is not constant with a weighted index.
9. Know that a threshold above one leads to an ES condition that is rarely given, even for households that experience monetary poverty.
10. Through successive restructuring and merging of the basic personal data file and the detailed household data file, the number of people and their age has been obtained and transformed into CUs for each year and household (details about the procedure to join the ECVL files are available upon request).
11. The poverty line is 60 per cent of the median annual income per CU. This is the most common threshold in the literature and is also the criterion used by the INE and the EUROSTAT. However, it is not exempt from criticism. For a discussion on the classical *poor/non-poor* dichotomous measurement, see [Ayala \*et al.\* \(2014\)](#), and, for example, on fuzzy measurements, see the study by [Verma \*et al.\* \(2017\)](#).
12. Given that the income data of the ECV refers to the year prior to the interview, to establish the households without initial poverty the income data corresponding to the second year of each period must be used. For the rest of the period, it can only be guaranteed that the household has not suffered from monetary poverty with respect to the two following years, as the income of the fourth year will be known in the following year and the data will not be included in the corresponding ECVL.
13. For the Spanish case see, for example, [Arranz and García-Serrano \(2009\)](#), [Albert and Davia \(2013\)](#) or [Tejero \(2017\)](#).
14. Distributions of these variables among the households files are available upon by request.
15. Other alternatives have been implemented for the possible effects of this variable, such as the age of the household main person or the average age of the two main adults interviewed. However, both the mean age of all adults in the household and the dispersion from the mean are considered more appropriate.
16. For a discussion about health and the errors in the definition of MD indices, see [Beduk \(2018\)](#).
17. This variable constructed only for the main person is less explanatory.
18. We do not use the [EUROSTAT \(2012, 2014\)](#) EU definition of household labor intensity because the variables used in the transversal ECV to estimate this indicator are not available in the ECVL. For this reason, our employment intensity variable is closer to the concept of the household employment rate. In any case, the standard EUROSTAT indicator is not exempt from problems, such as the number of “workable” months, the estimates of full time equivalent employment and the scope of the population of potential workers (aged 18-59). See [Ponthieux \(2010a, 2010b, 2016, 2017\)](#).
19. The variables EMPL and UNEMPL would not have a high correlation as the former is based on the *employment rate* and the latter on the *unemployment rate*. We compute the correlations for the initial year of each wave of the ECVL, and the highest coefficient is  $-0.32$  (ECVL-2012).

In addition, there are no high correlations between VAREMPLH and VARUNEMH. Specifically, a maximum positive value of 0.39 (ECVL-2016). Note that it may be rather a situation in which the household experiences unemployment and, at the same time, achieves contracts and new jobs. Hence, there is a high unemployment/employment rotation.

20. See [Gradín \(2016\)](#), [Marí-Klose and Escapa \(2015\)](#), [Pérez-Albarracín and Montero \(2016\)](#) or [INE \(2012\)](#).
21. Among economists, the terms “middle income” group and “middle class” are often used interchangeably ([Pew Research Center, 2017](#); [Whelan \*et al.\*, 2016, 2017](#)). As [Whelan \*et al.\* \(2016, 2017\)](#) points out, within this income-based framework, class classifications are given according to deciles or quintiles, or percentages of median household income. For the first approach, the size of classes remains constant over time ([Atkinson and Brandolini, 2013](#)) and for the second, there is no specific methodology for the distribution of households by income groups. For example, for the Spanish case, [Herrero \*et al.\* \(2018\)](#) divided the households into two groups according to whether the income was greater or lesser than the *mean* income. Subsequently, for each of these two subgroups, they calculated the *mean* incomes and used the same division rule. Meanwhile, [Goerlich \(2016\)](#) establishes three income intervals (called “social class”): less than 75 per cent, between 75 and 200 per cent and over 200 per cent of the median. The intervals we use guarantee enough households in the highest part of the distribution.
22. For a discussion and empirical interpretation of the logit and probit models using the ECV, see [Arranz and García-Serrano \(2009\)](#). Indeed, a probit model has been estimated for the households ECVL 2011-2016. We obtain a similar goodness of fit, identical signs of the estimated parameters and statistical significance, although the coefficients (in absolute value) are slightly lower.
23. This procedure is identical to that described by [Henke and Till \(2014\)](#) except for the last step. In our case, it is not necessary to reshape the “wide” format of the data (each register information in one row plus additional variables for longitudinal analysis derived from “cross-sectional” time-varying variables) back into the “long” format (person-period data where individuals appear in each year), because we do not study duration spells of monetary poverty, deprivation or ES.
24. Regardless of the sample attrition, which is assumed to be compensated *ex-post* through the longitudinal elevation factor ([Cantó and Ruiz, 2015](#)) so that in the ECV individuals with closely associated with drop-out probabilities receive relatively large weights to compensate. However, as [Jenkins and Van Kerm \(2017\)](#) point out, the weighting strategy works if those remaining are not systematically different from those dropping out.
25. We do not make the assumption that entry into ES during the crisis years is specifically due to the crisis, as it is necessary to compare the results before, during and after the crisis. At present, it is not possible to address for two reasons. First, the last disseminated ECVL covers the period 2014-2017, so its income data starts one year before, in 2013, during the crisis. Second, in 2013 the Spanish ECV began to use a new procedure to obtain household income data using administrative records, instead of the previous method through a personal interview -self-declared income-. [Goerlich \(2019\)](#) has analyzed the impact of this change from 2008 to 2014, and has found raises in the household income levels and so, lower poverty levels: 13 per cent of households classified as poor with self-declared income are *non-poor* using the registers. Hence, the analysis prior to the 2013 ECVL leads to an important methodological limitation for our dependent variable (households with/without monetary poverty) because the relative threshold is not operationally identical to the new one. Furthermore, the probability of being classified as *non-poor* household would be higher with the current one.
26. For example, in logit estimates based on the ECV/EU-SILC, a maximum McFadden *pseudo R*<sup>2</sup> of 0.07 was obtained by [Greulich and Dasré \(2017\)](#) for the women’s probability of being followed up for four years; according to [Lučkaničová \*et al.\* \(2012\)](#) a value of 0.215 for the probability of being employed in Slovakia; [Iriondo and Rahona \(2009\)](#), in their analysis of the differences in holding a house in Spain between the native and immigrant population, find a maximum *pseudo R*<sup>2</sup> of 0.11;

meanwhile, Guagnano *et al.* (2013), obtain a *pseudo R*<sup>2</sup> of 0.32 for the relationships between self-perceived poverty and both property and individual social capital. Other examples are Cueto *et al.* (2017) for the probability of intergenerational transmission of situations of economic difficulty and obtain a maximum *pseudo R*<sup>2</sup> of 0.11; or 0.15 in Albert and Davia (2013) for the risk of poverty among young Spanish people by region.

27. Herrero *et al.* (2018; p. 79) also find that in lower purchasing power households, the increase in the average size can be the result of the grouping of family units to benefit from the economies of scale.
28. Goerlich (2016) finds a similar result.
29. The  $\chi^2$  homogeneity test was used for categorical variables. We rejected the null hypothesis that the distribution of the variable (type of contract, hours of work and reason for change) does not differ in the populations from which the samples were obtained (households without poverty or ES and other households).
30. Although the ECVL contains information about the income of wage-earners for the calendar year before the interview (PY010G variable), it cannot be completely related to the moment when the individuals find a new job or start working, as the question about employment status refers to the last year and a half, without considering the exact moment when the change happened. Therefore, changes may have occurred in the activity status during the last six months to which the PY010G is insensitive. In fact, in the EVCL-2016, we have found inconsistencies, such as 17 per cent of individuals who access employment from inactivity or unemployment and who declare the monetary income of the wage-earner as zero, and 41 per cent who declare they earn less than the previous year when they did not work.

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