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Household precariousness and youth living arrangements in
Spain: evidence for a complete business cycle

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Abstract

Economic difficulties during recessions affect young individuals' life projects and may delay emancipation and childbearing. For a period of persistent growth, previous analyses on emancipation in Spain found a key role of the "adapting to circumstances" attitude in youth cohabiting living arrangements: a large number of young individuals reduce their poverty risk by remaining at their parental homes if both parents are employed, and at the same time, a significant number of households reduce their poverty risk by adding cohabiting young workers' wages to their disposable income. Using individual and household employment deprivation information from an extensive dataset, we study the evolution and determinants of youth living arrangements for a complete business cycle. Our results show that in addition to individual labor market status, the employment deprivation levels of other active household members are important determinants of youth emancipation decisions along the cycle.

Keywords: living arrangements, precariousness, poverty, Great Recession.

JEL codes: D1, J12, I3

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Introduction

The Spanish labor market is highly precarious in the European Union (EU) context with a large number of individuals earning low wages (Blázquez, 2008; Organisation for Economic Co-operation and Development [OECD], 2017), an emphasis on temporary contracts that increase employment insecurity (García-Serrano and Malo, 2013), and a large number of undesirable part-time jobs (OECD, 2010). During the recent economic crisis, the situation worsened, particularly for young workers (under 30 years of age). By the end of 2014, more than a million and a half of them were unemployed (a 38 percent unemployment rate for under 30), and their employment rate was only 35 percent. Moreover, approximately half of the employed held fixed-term contracts, and almost 30 percent were in unwanted part-time jobs (Cebrián and Moreno, 2018). The last two main labor market reforms, launched in 2010 and 2012, were aimed at introducing mechanisms that would help to prevent worker vulnerability and social exclusion, with young people as the main target group. However, implemented measures have not been able to reduce the level of precariousness among young employed workers in Spain.

As Aparicio-Fenoll and Oppedisano (2012) note, the economic literature has consistently shown that perceived job insecurity, limited access to credit markets, high housing prices, and low lifetime earnings play an important role in delaying youth emancipation (Becker et al., 2010). Some studies showed that not only did youngsters decide to delay emancipation during the crisis but also some young people returned to their family nests to avoid falling into poverty (Ceballos-Santamaría and Villanueva, 2014; Fry, 2015). This effect has been documented for other European countries different from Spain and for the United States (US), as a relevant demographic event that has been taking place since 2008. This phenomenon refers to the increase in “doubled-up households” or the existence of a “boomerang generation”: those who left the parental home before the crisis and return to it when their economic circumstances worsen.

Ayllon (2009) found that the reduction of poverty risk among non-emancipated youth in Spain from 1980 to 2005 occurred because an increasing number of Spaniards lived with two employed parents. Thus, emancipation is delayed when young people live in households that can afford this. Ayllon also found that when young workers are employed, their salaries play key protective roles for other co-residing family members by significantly reducing the family’s poverty risk. Therefore, this “adapting to circumstances” of both young individuals and their families implies the use of co-residence as a safety net for all household members who need it. These results are in line with a variety of previous evidence on Spain’s historical reliance upon

the family as an essential institution for the wellbeing of individuals who are most in need in times of economic difficulty (Reher, 1998; CJE, 2018).

The Great Recession has caused Spanish youngsters to face extremely adverse economic conditions. If Ayllón's results hold, the recession should have caused the Spanish youngsters to turn to their families in search of financial protection. Previously strong family ties between the young and their families should have been reinforced during the past decade, and emancipation should have been delayed more than ever before. Surprisingly, a recent analysis by Ahn and Sanchez-Marcos (2017) revealed that the proportion of people aged 18–40 living away from their parents increased slightly from 44 percent before the crisis to 46 percent during the bust. These authors sustain that this counterintuitive result mainly stems from the substantial rise in the emancipation rate of full-time employed workers during the bust.

The purpose of this paper is twofold. First, we aim to challenge Ahn and Sanchez-Marcos's (2017) results on youth living arrangements for Spain during the recession using the same data source (Labor Force Survey data) but redefining the young as individuals below 30 or 35 years of age—the most common thresholds in the emancipation literature. Indeed, individuals between 35 and 40 years of age probably have a different attitude toward emancipation and are likely to leave the parental household as long as they have some means of subsistence. We would like to check if using a more adequate definition of youth produces results that are more in line with previous literature on the matter (Martínez-Granado and Ruiz-Castillo, 2002; Ayllón, 2009; etc.). Second, we want to deepen the study of the relationship between young individuals' living arrangements and household poverty and employment precariousness, taking advantage of the detailed information that a large quarterly dataset can offer us on precariousness, joblessness, and extreme poverty at the household level. In particular, we would like to see if adverse economic conditions, such as high rates of unemployment or underemployment (involuntary part-time employment) at the household level, explain a delay in emancipation together with individual labor market status (or youth's turning to their families for financial protection if their parents are in better positions). In fact, one of the main contributions of this paper is that it involves testing whether indicators of household employment levels (precariousness, for example, low work intensity or joblessness) and economic difficulty (severe poverty) have stronger effects on youth emancipation decisions than standard measures of individual labor market status do. Additionally, we measure the role of youth living arrangements, for example, being emancipated or not, in determining the

probability that households are in severe poverty, are jobless, or have active members with low work intensity (those who are underemployed) along a full business cycle period.

The paper is organized as follows. In the second section, we review the recent trends of working opportunities and the conditions of young workers in the Spanish labor market. In the third section, we discuss the theory and evidence on the relationship between emancipation and poverty in economics. In the fourth and fifth section, we present our empirical strategy, and we discuss our main results. The last section concludes the paper.

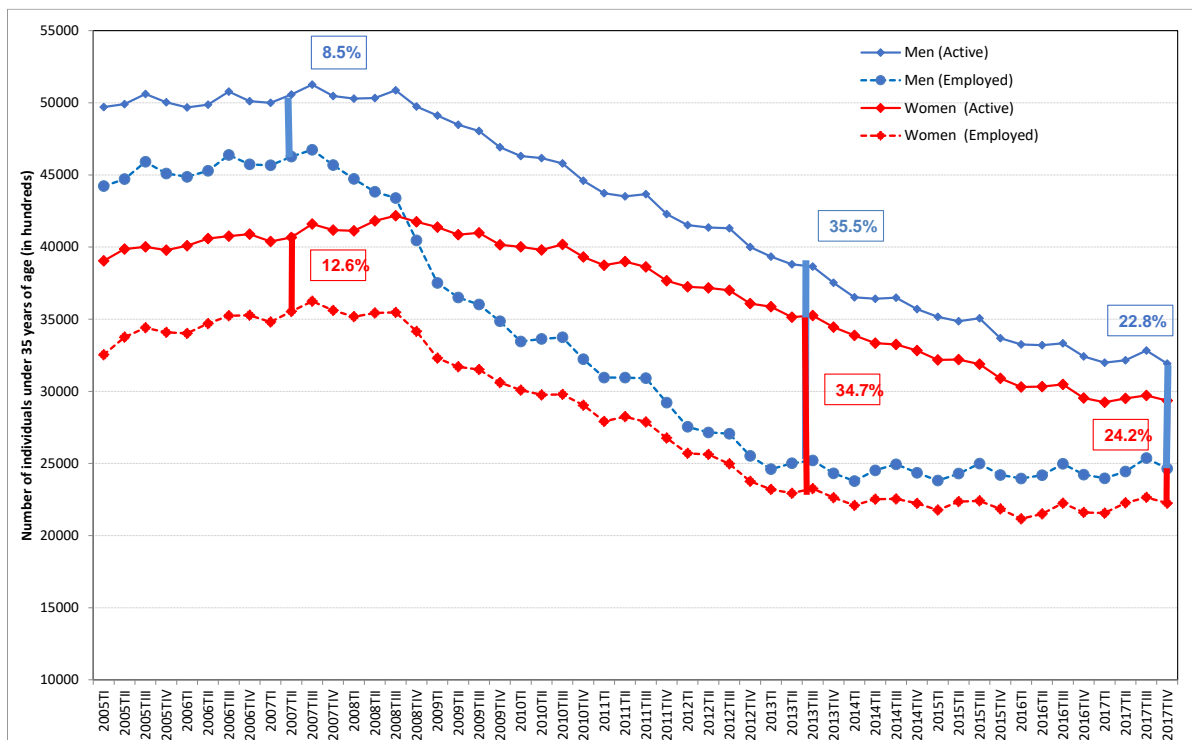
2. Recent trends in working opportunities and the conditions of young workers in the Spanish labor market

The last economic crisis has largely increased youth vulnerability in terms of both unemployment risk and the job quality of those who are employed, leading to more insecure school-to-work transitions and an increased detachment from the labor market. After the crisis, in the second quarter of 2017, the Spanish youth unemployment rate for those under 35 was still very high. However, significant differences exist among age groups, and both male and female unemployment rates fall as age increases.

In addition, young workers suffer the highest rate of fixed-term employment with a temporary rate over 50 percent and a high turnover rate (Figures 1 and 2). Based on information from the Public Employment Service (*Servicio Público de Empleo*, SEPE), between 2012 and 2017, approximately one-third of all contracts were registered for workers under 35 years of age. In 2017, only 7 percent of them were open ended, whereas almost 40 percent in the case of men and more than 50 percent in the case of women were part time. The global part-time rate based on the Spanish Labor Force Survey (*Encuesta de Población Activa*, EPA) data has been around 15 percent since 2012, and for those under 35, it is greater than 20 percent, with a very clear increasing trend occurring since 2008 (Figures 3 and 4).

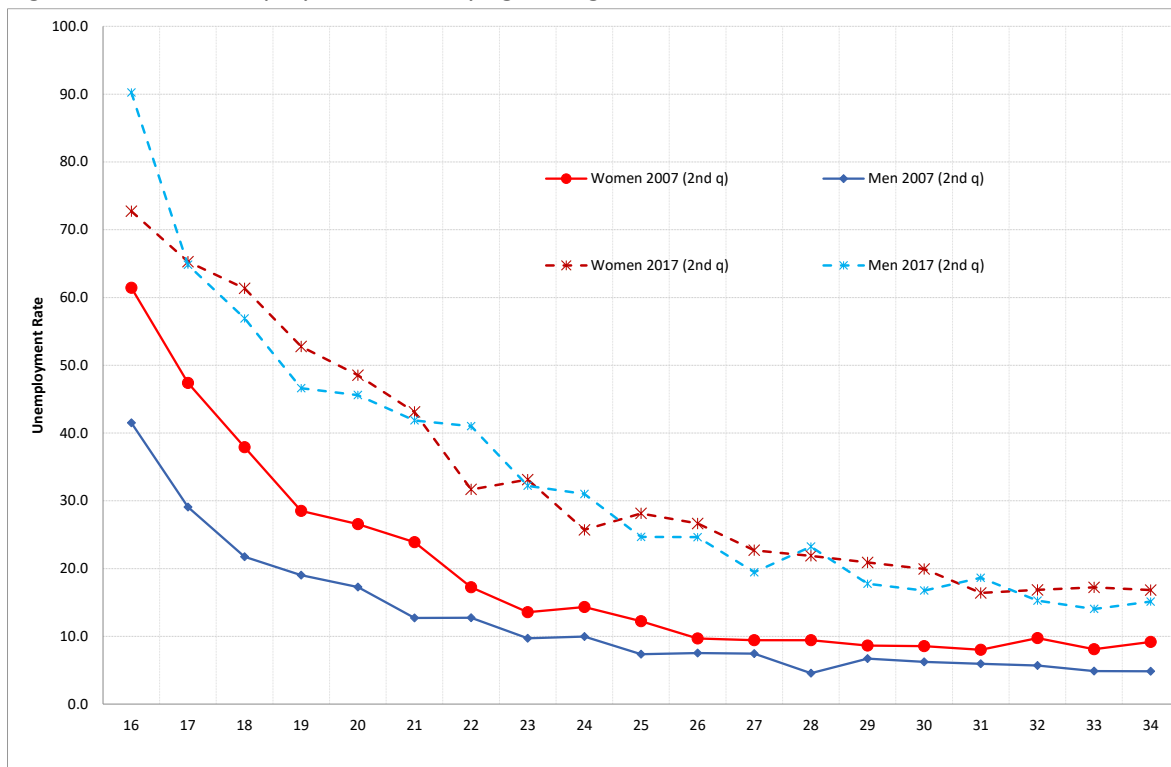
Some studies focused on the Spanish case, suggesting that many young people are trapped in temporary work and that only some of them can manage to take open-ended contracts after certain periods in temporary jobs (Güell and Petrongolo, 2007; Toharia and Cebrián, 2007; Cebrián and Toharia, 2008; García Pérez and Muñoz Bullón, 2011; García Pérez et al, 2014; Cebrián and Moreno, 2019). The situation is similar in other countries, for example, as shown in the study by International Labor Office (ILO, 2014).

Figure 1. Trends in activity and employment of young individuals (under 35) by gender, 2005-2017.



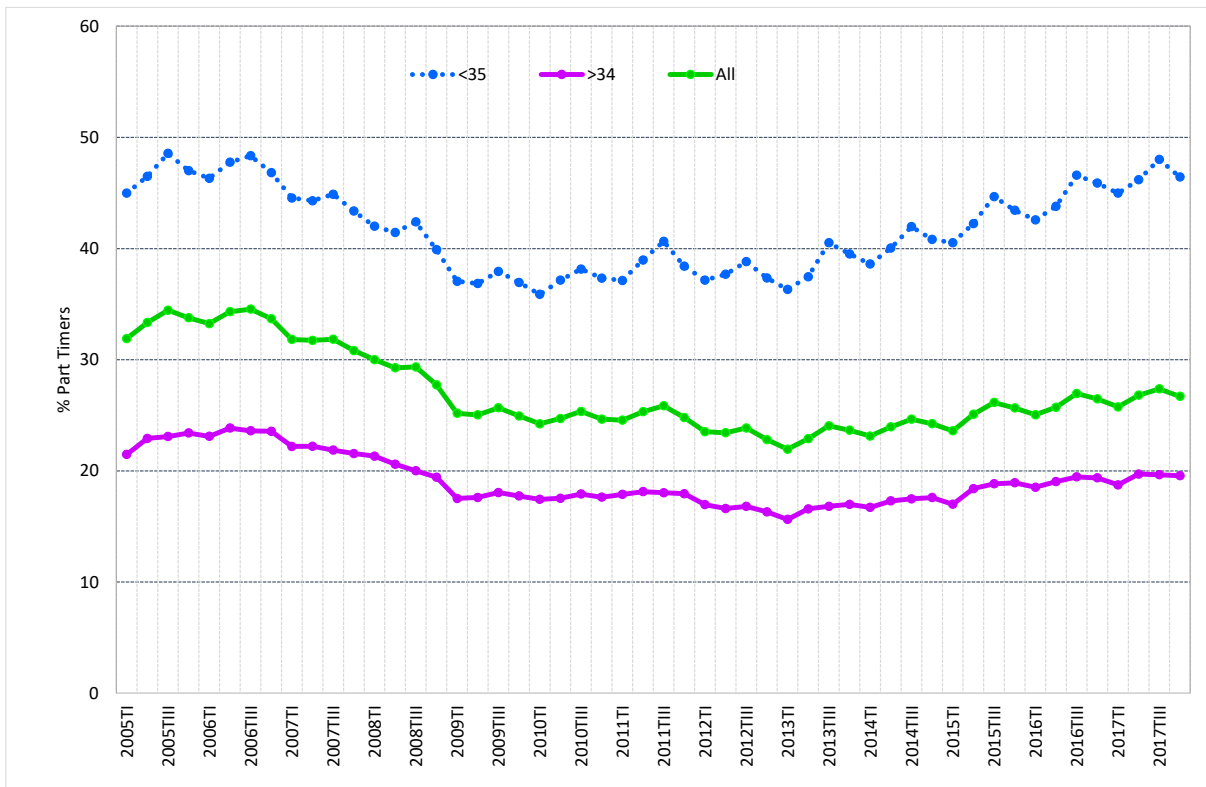
Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2005-2017. Instituto Nacional de Estadística (INE).

Figure 2. Youth unemployment rates by age and gender: 2007 versus 2017.



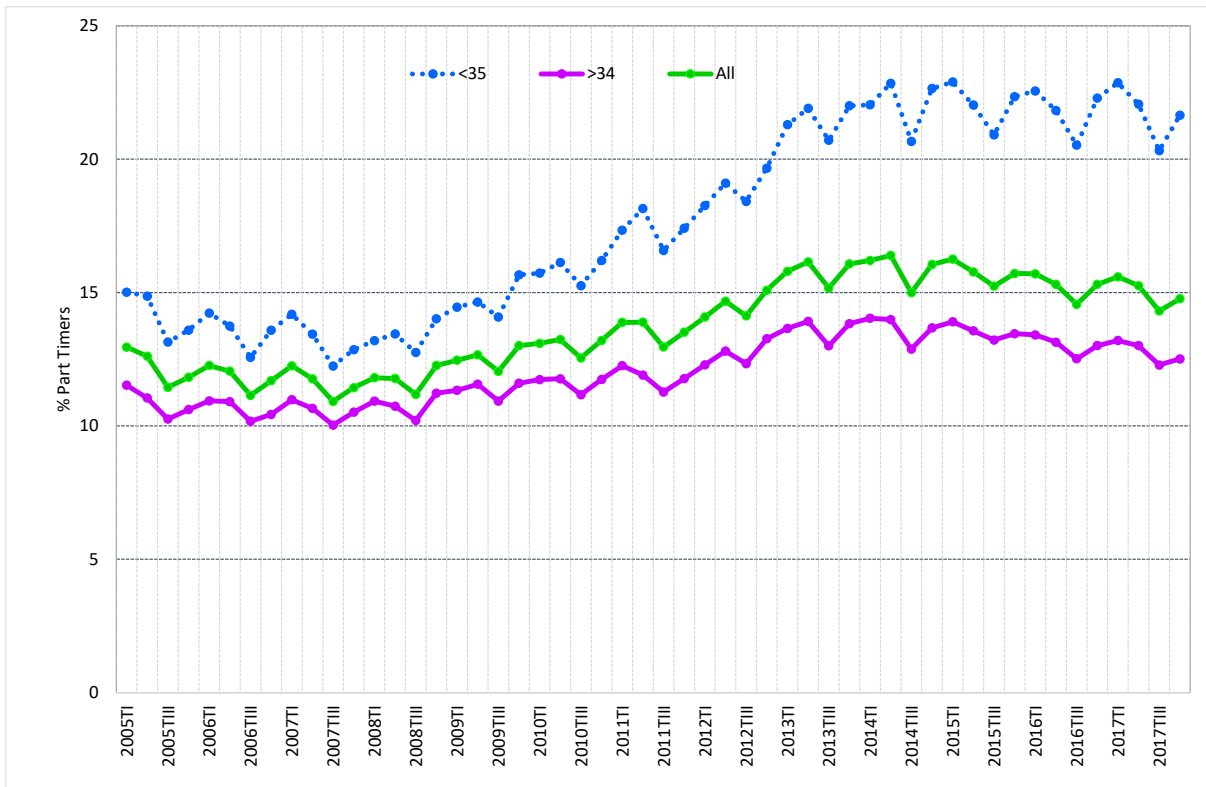
Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2nd quarter, 2007 & 2017. Instituto Nacional de Estadística (INE).

Figure 3. Trends in share of temporary contracts by age group, 2005-2017



Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2005-2016. Instituto Nacional de Estadística (INE)

Figure 4. Trends in share of part time work by age group, 2005-2017.



Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2005-2017. Instituto Nacional de Estadística (INE)

The analysis of young workers' transitions into the labor market when they finish their studies in the education system show that being a male with a relatively high family income and living in an urban environment facilitates access to employment, whereas the transition to a stable job is determined based on the specific conditions of the labor market. Young people tend to hold onto their jobs, regardless of the jobs' quality, given the high rates of unemployment suffered today.

3. Living arrangements, precariousness, and adverse economic conditions: how are they related?

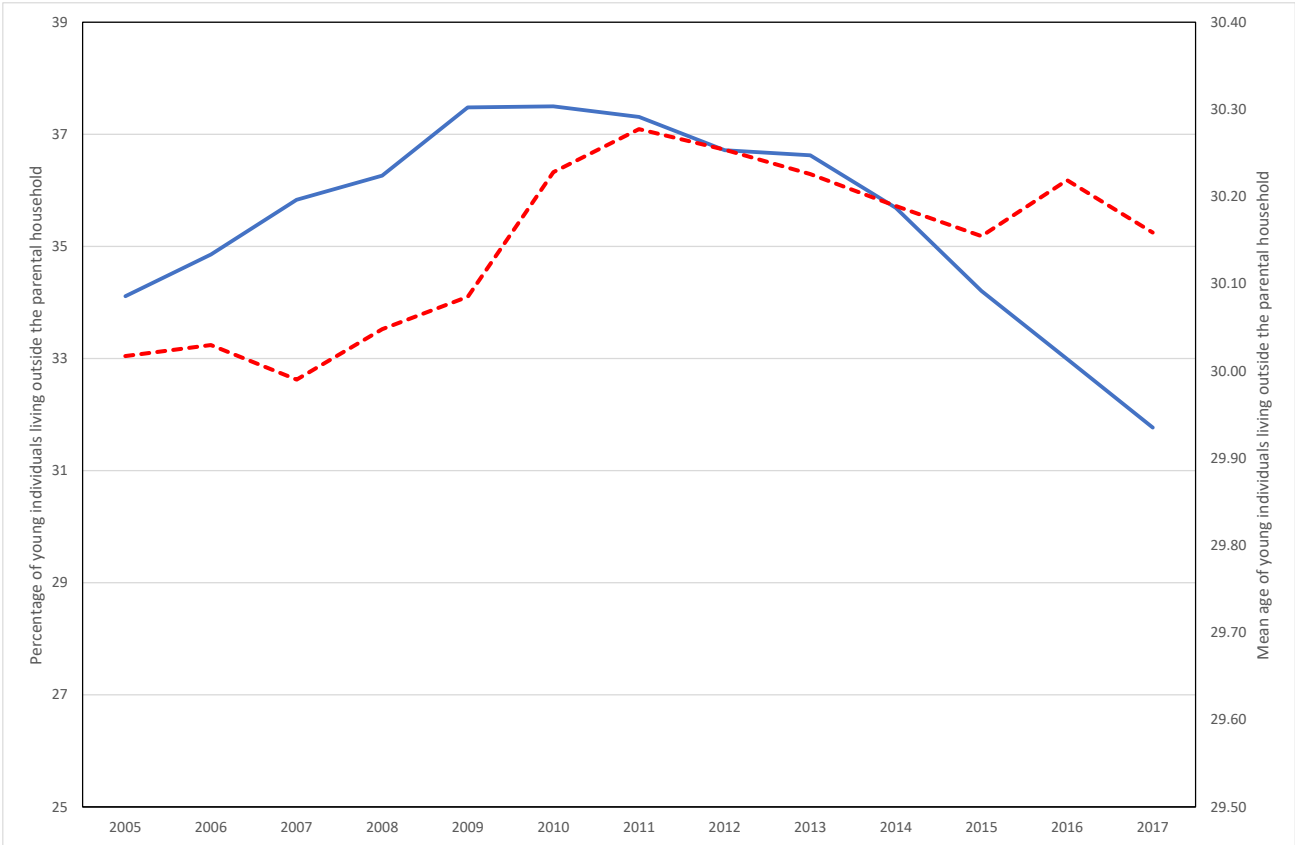
The economic literature has consistently shown that perceived job insecurity, limited access to credit markets, high housing prices, and low lifetime earnings play important roles in delaying youth emancipation (Giannelli and Monfardini, 2003, Becker et al., 2010). Most traditional economic analysis has shown that this decision is strongly related to the parent's and child's income; the higher the child's income, the higher the emancipation rates. Meanwhile, co-residence is more likely to happen when parental income is higher (McElroy, 1985; Avery et al, 1992; Rosenzweig and Wolpin, 1993; Ermisch, 1999). However, given a similar level of income, large differences persist in the emancipation patterns of various European countries. In Scandinavia, emancipation takes place early while in Southern European countries it takes place much later. Ayllón (2015) found that emancipation increases the probability of entering poverty for only a short period of time in Scandinavia, whereas in Southern European countries, fewer youth face economic hardship (due to co-residence). However, those who are in poverty have greater difficulty with leaving it behind, so they suffer longer poverty spells¹.

A number of other papers have analyzed the relationship between youth living arrangements and other factors (related to but different from income), such as precariousness in its various forms (low wages, poverty, job insecurity, etc.). The main results are consistent with the relevant role of low wages and the need for complementary parental transfers to maintain wellbeing in deterring emancipation (Di Stefano, 2017). The higher the father's job insecurity and the lower the youth job insecurity, the higher the probability of youth emancipation (Becker et al, 2010).

¹Ayllón (2015) shows that one should not measure youth poverty persistence in EU countries independently from other related life transitions with lasting consequences on young people's economic wellbeing, such as finding a job or leaving the parental home.

One of the main expected consequences of youth precariousness since the beginning of the Great Recession, with young people adopting an “adapting to circumstances” attitude, is a change in the household’s living arrangements. Some studies showed that not only did youngsters decide to delay emancipation during the crisis but also some young people returned to their family nests to avoid falling into poverty (Ceballos-Santamaría and Villanueva, 2014). Indeed, it is not just youth emancipation that the risk of poverty affects (Aasve et al.2005, 2007 and 2013; Parisi, 2008); youth emancipation or living arrangement decisions also affect household poverty. Leaving home increases the poverty entry rate of the remaining household members, thus pointing to the fact that the economic contributions of young people to the parental home prior to leaving are also important (Cantó and Mercader-Prats, 2001, 2002). Also, note that for Spain or Italy, various studies have underlined that high housing prices are key to deterring youth emancipation (Martinez-Granado and Ruiz-Castillo, 2002; Alessie et al, 2006).

Figure 5. Percentage of young individuals living outside the parental household and their mean age.



Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2005-2017. Natives only. Instituto Nacional de Estadística (INE)

As we depict in Figure 5, the percentage of young individuals (16-34) living outside of the parental home in Spain experienced a clearly increasing trend during the boom, even if the mean age of those emancipating was also growing during this period. This implies that this

increase should not be interpreted as the youngest generation deciding to emancipate earlier. Rather, the oldest individuals among the young population finally found a way to make this transition, probably due to a quite favorable labor market situation. This percentage stabilized during the recession and was rather constant up to 2013. In turn, during the years of economic recovery, the percentage of young individuals living outside of the parental home fell significantly and is now below that of 2005, whereas the mean age of those living outside of the parental home has been rather stable at around the age of 30.

The evidence on youth living arrangements, poverty, and precariousness in Spain has generally concluded that delayed emancipation is due to two main reasons. First, the reduction of poverty risk among non-emancipated youth is linked to an increasing number of Spaniards living with two employed parents. Second, in poorer households, youth salaries play a key protective role for other co-residing family members by significantly reducing the family's poverty risk (Ayllón, 2009). Therefore, this “adapting to circumstances” attitude of both young individuals and their families implies the use of co-residence as a safety net for all household members who need it. These results are in line with a variety of previous evidence on Spain's historical reliance upon the family as an essential institution for the wellbeing of individuals who are most in need in times of economic difficulty (Reher, 1998). The Great Recession has caused Spanish youngsters to face extremely adverse economic conditions since 2008 given the large dimension of the recession. If Ayllon's results hold, the recession should have caused them to turn to their families in search of financial protection. Previously strong family ties between the young and their families should have been reinforced during the past decade, and emancipation should have been delayed more than ever before.

4. Modeling youth living arrangements and precariousness in Spain using the Labor Force Survey data

4.1.1. Data and main definitions

We use data from the quarterly Spanish Labor Force Survey (Encuesta de Población Activa, EPA) to analyze youth living arrangements and precariousness for more than an entire decade (2005-2017). This is a large dataset that includes 150,000 observations per quarter, including those from 20,000 to 30,000 individuals between 16 and 34 years of age in Spain. The Spanish Statistical Office consistently provides this on a quarterly basis. Our final sample includes more than 800,000 individuals. The use of longitudinal data, such as the EU-Survey of Income and Living Conditions, would allow us to observe effective transitions in and outside of the parental

home. However, the low quality of this longitudinal data source in terms of the sample, the limited number of youth transitions observed for Spain, and the high attrition rates after the second interview are serious problems for our particular analysis. As in Ahn and Sánchez-Marcos (2017), we refer to emancipation as the situation where non-immigrant individuals live on their own as opposed to living with their parents. We also count as non-emancipated those who returned to the parental home during this period as long as they were below 35 years of age.

Interestingly, the EPA provides us with particularly detailed information on all household members' labor market situations and youth living arrangements considering the answer to the question on each individual's relationship with the household head. Moreover, instead of using a definition of poverty that is strictly related to household income as in Ayllón (2009), we use the EPA and thus consider three complementary definitions of poverty and precariousness that focus on a household perspective: severe poverty, joblessness, and low work intensity (underemployment).

During the Great Recession, one of the main issues that was raised as being most worrisome in developed countries is the severity of the impact of unemployment on households so as to exclude them from the labor market completely. In fact, during the past two decades, a certain gap has been widening between "work rich" and "work poor" households as first noted in Gregg and Wadsworth (1996). Indeed, the OECD (2001) shows that workless household rates are more highly correlated with working-age poverty rates across countries than individually based unemployment rates. Similarly, Gregg *et al.* (2010) underline that household joblessness is an important factor in the transmission of the intergenerational effects of poverty given that parental income has significant effects on the future welfare of children (Ayala et al, 2017).

In this setting, the Europe 2020 strategy for jobs as well as sustainable and inclusive growth has as its headline target the reduction of poverty. This will be evaluated using an indicator that considers both a lack of income and a lack of earnings (i.e., household joblessness or low work intensity). We believe that a measure of the proportion of households that do not earn income from labor and that do not receive any social security transfers reflects the incidence of very severe poverty or deprivation (in employment and income) in a given population.² Furthermore,

²As Ayala et al. (2017) underline that the evolution of this poverty measure in time is quite similar to that of the number of households below a 30% equivalent income poverty threshold for the years in which both measures can be calculated.

this measure of severe poverty is strongly linked to the idea of “disconnected households,” which unfortunately has seldom been explored in the European context. This makes it rather innovative and links our results to those of an emerging literature for the US, where similar strategies are used in an attempt to measure the proportion of households in the population that are disconnected from the labor market and the general system of cash benefits (Blank and Kovak, 2008; Edelman and Holzer, 2013).

Therefore, at least two reasons exist for choosing our particular measure of poverty and precariousness. First, it is an interesting quarterly measure on income deprivation that may be deemed a proxy for severe poverty. In addition, it is readily available in Labor Force Surveys in the entire EU. However, a second and not trivial reason is that this more severe poverty definition helps us to avoid some of the intrinsic limitations of other measures based on disposable income³ so as to understand the effects of the business cycle on living arrangements. In any case, we are conscious that using this measure of poverty implies assuming a somewhat restrictive notion of the income deprivation phenomenon given that the poverty threshold is low and therefore its evolution might be less sensitive to changes in macroeconomic conditions. This is the reason why we also consider a wider and more comprehensive measure of deprivation that considers a household to be poor if all active members of the household are jobless.

The Spanish Statistical Office (*Instituto Nacional de Estadística*, INE) has repeatedly collected the data we use here since the end of the 1960s.⁴ A key definition in our analysis is that of young people. Unfortunately, no wide consensus exists on the age limit to consider what we mean when we use the word “youth.” In general, nevertheless, given the increase in the length of education, the delay in emancipation, and the postponement of fertility (Ayllón, 2009), the most common range of ages for youth in the literature is from 16 to 35 years of age.

In this paper, we consider two youth age groups, those between 16 and 34 years of age, and those between 16 and 29 years of age (for the robustness of our main results). The lower age limit has been chosen for practical reasons, as the EPA interviews in detail only individuals at or over this age. The two upper limits follow the literature on the matter. The second age limit (29 years) is consistent with the definition of the Spanish Youth Institute of the Ministry of

³In particular, those that fix a poverty threshold relative to the value of the mean or median household income.

⁴Table A1 shows the sample size of a representative quarter of our dataset in terms of households, individuals, and young people aged 16 to 29 years of age.

Work and Social Affairs, and it serves as a robustness check of our main results on the former group. Following the empirical results of Ahn and Sanchez-Marcos (2017), we can check that the emancipation rate at 35 is close to 80 percent, and it is precisely then when its rate of increase becomes significantly slower compared with the 24-35 age range.

Following Ayala et al. (2017), we define severe poverty as the proportion of individuals living in households where nobody receives income from work or benefits from any social security transfers. Thus, a young person is considered to be severely poor if his or her household does not earn any income from labor and does not receive any social security transfers. In this setting, the *Europe 2020 strategy* for jobs as well as sustainable and inclusive growth has as its headline target the reduction of poverty. This will be evaluated using an indicator that considers both a lack of income and a lack of earnings (i.e., household joblessness or low work intensity). Consequently, we aim for our poverty indicator to become a measure that is somewhat nearer to a “vulnerability” concept. We believe that both a lack of income and household members’ labor market exclusion are most likely to condition the individual perception of poverty risk or income deprivation, and consequently, they may be determinants in emancipation decisions. Furthermore, this measure of severe poverty is strongly linked to the idea of “disconnected households,” which unfortunately has seldom been explored in the European context. A further definition of deprivation is captured by a less severe measure of deprivation: living in a jobless household. This second definition follows Gregg et al. (2010), who underline that household joblessness is an important factor in the intergenerational transmission of poverty given that parental income has significant effects on the future welfare of cohabiting children. In a similar way, this measure could affect youth emancipation decisions more strongly than individual labor market status does.

Finally, we define low work intensity or underemployment at the household level as being when all active individuals in the household are employed below their employment potential. This measure captures households that are in slightly better positions than jobless ones but that have disposable income below the poverty line due to the few hours of work of their active members. For this purpose, we follow the methodology proposed in Gradín et al. (2017), which allows us to establish a more direct relation between household precariousness and emancipation, as many individuals are vulnerable to social exclusion being that they cohabit in households with very low work intensity. This measure is extremely flexible and can incorporate the standard unemployment rate and several workless household rates as particular cases depending on the values chosen for the index’s parameters.

4.1.2. A measure of household labor market precariousness or low work intensity

We follow Gradín et al.'s (2017) proposal for measuring employment deprivation, and we calculate for each household an employment precariousness (or employment deprivation) index—in this case, only for members different from the young individual. This index could be, for example, the proportion of household members in the labor force who are unemployed and would be equivalent to calculating the household unemployment rate. Alternatively, we could use a more accurate measure that also accounts for the actual number of hours that household members work relative to the number of hours they are willing to work, thus taking into consideration that part-time workers who are seeking full-time jobs (and full-timers working below their desired hours) are also part-time unemployed. In this case, the identification problem can be solved by including as unemployed not only officially unemployed individuals but also those workers who are underemployed given their willingness to increase their number of hours of work. Furthermore, if we were interested in measuring the most severe deprivation, this index would also allow us to set a household employment deprivation threshold below which a household would not be deemed employment deprived. Thus, for example, if the deprivation threshold were 20%, only households working less than 80% of potential hours would be deemed deprived. Choosing different thresholds allows us to measure a variety of employment exclusion concepts depending on the degree of unemployment severity.

Consider a society consisting of N households where at least one member different from the young individual is economically active (i.e., he or she is a working-age individual available to work). Each active household i is composed of individuals. The raw vector of individual employment gaps for household i , has elements given by:

$$g_{ij}^{\gamma} = \begin{cases} \left(\frac{\bar{h}_{ij} - h_{ij}}{\bar{h}_{ij}} \right)^{\gamma} & \text{if } h_{ij} < \bar{h}_{ij} \text{ and } j \in \theta_i \text{ (1)} \\ 0 & \text{otherwise} \end{cases}$$

where parameter $\gamma = 1$; $h_{ij} \geq 0$ is the number of working hours of individual j ; $\bar{h}_{ij} > 0$ is the individual threshold of working hours (that is, the number of working hours he or she wishes to work, the usual number of hours, or the potential number of hours); and θ_i is the set of employment-deprived individuals (those who are either unemployed or underemployed) in household i . If θ_i includes both unemployed individuals and employed individuals who wish

to increase their number of usual working hours (underemployed or low-work-intensity workers), g_{ij}^γ quantifies the relative gap of working hours for each unemployed or underemployed individual in the household. This means that for unemployed workers, $g_{ij}^\gamma = 1$, but for underemployed workers, $0 < g_{ij}^\gamma < 1$. A household employment deprivation index is function $u_i(g_{ij}^\gamma; \tau)$, which maps each individual employment gap profile into R_+ (where R_+ is the nonnegative real number set) for a given household employment deprivation threshold, $0 \leq \tau \leq 1$.

The household employment deprivation index, $u_i(g_{ij}^\gamma; \tau)$, is a modified Foster, Greer and Thorbecke (FGT) index. Thus:

$$u_i(g_{ij}^\gamma; \tau) = \begin{cases} \frac{1}{H_i^A} \sum_{j=1}^{H_i^A} g_{ij} & \text{if } \hat{u}_i \geq \tau \\ 0 & \text{if } \hat{u}_i < \tau \end{cases} \quad (2)$$

where $0 \leq \tau \leq 1$ is a given household employment deprivation threshold, g_{ij}^γ is defined as in expression (1), H_i^A is the number of economically active individuals in household i , and \hat{u}_i is defined as:

$$\hat{u}_i = \frac{1}{H_i^A} \sum_{j=1}^{H_i^A} g_{ij}$$

\hat{u}_i represents the share of the gap of total working hours in the household (in relation to the maximum number of hours). Thus, $u_i(g_{ij}^\gamma; \tau)$ is a function whose value indicates the degree of employment deprivation of household i based on the household employment deprivation profile given, τ . A household with average employment deprivation below the threshold is not identified as deprived, although some members could be unemployed or underemployed.

We classify households using different values of τ from lower to higher precariousness or work intensity: below 0.2, between 0.2 and 0.4, between 0.4 and 0.6, between 0.6 and 0.8, over 0.8 but below 1, and equal to 1 ($\hat{u}_i = 1$ means joblessness). Households that are deprived for only a few hours have a small value of our precariousness index, whereas those where most active members are unemployed have a value of approximately 1. In our analysis, we also consider another category for households that are extremely poor and that not only are employment deprived but also do not receive any contributory or non-contributory benefits.

4.1.3. Multivariate analysis of emancipation and household precariousness

We run various regressions to identify the determinants of youth living arrangements, and we compare our results with those that Ahn and Sanchez-Marcos (2017) obtained for a similar period. We run an ordinary least squares (OLS) regression and a standard probit estimation for the probability of being emancipated (separately for males and females) for non-immigrant individuals between 16 and 34 years of age. Here, we consider the behavioral changes that may modify emancipation rates by either individual labor market status and household's precariousness situation: severe poverty, joblessness, and household members' low work intensity. We include the interaction terms of both labor market status and household precariousness with the recession period (or recovery period), as well as housing prices at the regional level to control for regional and temporal differences in the macroeconomic conditions that may affect emancipation decisions. Then, the recession coefficient is the effect of the crisis due to factors other than macroeconomic conditions, individual labor status, or household precariousness situation.

Subsequently, given the reverse causation problem between emancipation decisions and individual and household economic situations, we estimate two seemingly unrelated regression (SUR) models (Cameron and Trivedi, 2010) for the probability of being emancipated and the dimension of household precariousness (household employment exclusion gap) and extreme poverty. This strategy allows us to evaluate reverse causation between the emancipation decisions of young household members and household economic situations due to severe poverty, joblessness, and low work intensity. As noted earlier, emancipated individuals may move back to their parental homes when facing economic difficulty. If emancipation increases the probability of living in a precarious household, we would confirm the “adapting to circumstances” result in Ayllón (2009). This is also true for the recession period for both young individuals and their families, which implies the use of co-residence as a safety net for all household members who need it.⁵

5. The determinants of youth living arrangements: the role of household precariousness and severe poverty

In this subsection, we describe our main results on the impact of individual and household employment deprivation levels on youth living arrangements during a complete business cycle

⁵Ayllón (2009) follows a different estimation strategy developed by Van de Ven and Van Praag (1981) and based on two Heckman selection models that estimate two probability equations simultaneously: A selection equation that controls if the young individual is in the parental home and a second one that estimates the probability of household precariousness.

in Spain for a 12-year period. Table 1 shows the emancipation rates by three key variables for the expansion, recession, and recovery periods: household precariousness situation, individual labor market situation, and severe household poverty.

On average, the emancipation rate for the population aged 16-34 during the bust is one percent higher than that during the boom, half of that observed in Ahn and Sanchez-Marcos (2017). This is most likely because the delay in observing individuals outside of their parental homes was highest in individuals over 34 years of age in their sample. Adding the recovery period in the analysis makes clear that the emancipation rate (observing individuals outside of their parental homes) decreases with some delay in relation to the business cycle: it falls four percentage points in the recovery period compared with the bust, and three percentage points compared with the boom.

Table 1. Emancipation rates and distribution of the young population aged 16-34 by household precariousness levels and individual labour market status in boom, bust and recovery periods, 2005-2017.

	Boom 2005-2008		Bust 2009-2013		Recovery 2014-2017	
	Distribution (%)	Emancipation (%)	Distribution (%)	Emancipation (%)	Distribution (%)	Emancipation (%)
By household situation						
Non-participants	2.7	22.2	2.7	22.5	2.9	20.6
Normal work intensity	80.2	34.6	65.4	38.0	63.8	34.1
Low work intensity	6.7	11.2	8.0	12.7	8.2	11.1
Very low work intensity	6.3	11.9	12.7	11.5	14.1	10.6
Joblessness	4.1	45.2	11.2	42.8	10.9	35.0
	100	31.7	100	32.7	100	28.6
By poverty levels						
Non severe poor	98.7	31.4	97.4	32.1	96.8	27.9
Severe poor	1.3	57.8	2.6	56.1	3.2	49.5
	100	31.7	100	32.7	100	28.6
By individual situation						
Non-participants	30.9	16.0	33.1	11.7	38.0	9.1
Unemployed	9.3	27.1	20.5	30.3	19.4	26.6
Employed	59.8	40.6	46.4	48.8	42.6	46.9
	100	31.7	100	32.7	100	28.6

Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2002-2017. Instituto Nacional de Estadística (INE).

As noted earlier, it is most likely that a variety of reasons affect the decision to emancipate from the parental household: not only is individual labor market status a key determinant but also the

labor market statuses of other members of the household can be relevant in this decision. Moreover, due to the structure of our data, where we observe only those individuals who are already emancipated but cannot observe the actual transitions, it is likely that a reverse causation effect exists among individual labor market status, household economic situation, and emancipation.

Thus, it is most interesting to compare labor market status (for the individual and his or her household) and emancipation rates in the three periods. Table 1 shows that the proportion of unemployed among young individuals doubled between the boom and the bust and has been rather stable during the recovery. That is, young individuals reduced their unemployment rate to a very limited extent during the 2014-2017 period, from 20.5 to 19.4 percent, whereas inactivity increased significantly: from 31 percent in the boom to 38 percent in the recovery. This implies that the percentage of young employed individuals consistently falls in the period from 60 percent (boom) to 42.6 percent (recovery).

For individual labor market status, the highest emancipation rate can be seen for employed individuals (over 40 percent), whereas non-participants reduced their emancipation rate from 16 percent to 9.1 percent during this period. However, it is most interesting to see that emancipation rates are very different for individuals with different household labor market precariousness levels. If the household level of work intensity is low or very low (13 percent of individuals), emancipation is extremely low (11.2 and 11.9 percent, respectively). Reverse causation causes individuals in jobless households (4.1 percent) to have a high emancipation rate (45.2 percent). These are emancipated individuals who become unemployed and do not return to their parental homes. For the same reason, the emancipation rate of individuals living in extremely poor households is high (57.2 percent). In both cases, the emancipation rates have consistently fallen since 2005, from 45 to 35 percent and from 58 to 49 percent, respectively. This shows that parental protection against risk is becoming more important whatever the business cycle situation may be. By undertaking a t-test, we find that all of these differences are statistically significant.

We wish to check the extent to which changes among these three business cycle periods are due to increases in the share of unemployed, inactivity, and very low work intensity versus behavioral changes. To do this, we compute the contribution of each factor to the evolution of the emancipation rate by decomposing the total variation of the emancipation rate into behavioral and compositional changes. This decomposition allows us to identify the role of

emancipation decisions (behavioral) versus changes in sample composition (compositional) for determining the slight reduction (1 percent) in emancipation rates between the bust and the boom. It also helps with determining the further reduction (4 percent) between the recovery and the bust. Holding the composition at the average of the first two periods (boom and bust), we conclude that behavioral changes are relevant only for well-positioned individuals, the employed, those whose households have normal levels of work intensity, and those who are over 30 but still living with their parents. In fact, the counterintuitive result of the increase in emancipation between the boom and the bust is clearly explained by this behavioral change and the change in the age and labor market situation composition of the young population. This change increases the population weight of this group of employed youth over 30 years of age (Table 2).

Table 2. Decomposition of the variation in youth living arrangements between business cycle periods (16-34): behavioural versus compositional.

	Boom versus Bust			Bust versus Recovery		
	Total	Behavioural	Compositional	Total	Behavioural	Compositional
By age-groups						
16-25	-3.7%	-0.2%	-3.5%	1.7%	-0.4%	2.0%
26-29	2.2%	0.4%	1.8%	-2.2%	-1.0%	-1.2%
30-34	33.9%	0.4%	33.6%	-24.2%	-1.5%	-22.7%
By gender						
Male	-2.7%	0.3%	-3.0%	0.1%	-1.8%	1.9%
Female	4.7%	0.7%	4.0%	-4.9%	-2.3%	-2.6%
By household situation						
Non-participants	-0.3%	0.0%	-0.3%	0.1%	0.0%	0.2%
Normal work intensity	7.7%	2.4%	5.3%	-6.5%	-2.9%	-3.6%
Low work intensity	-0.7%	0.1%	-0.8%	0.5%	-0.1%	0.6%
Very low work intensity	-1.2%	0.0%	-1.2%	0.7%	-0.1%	0.8%
Joblessness	1.4%	-0.2%	1.7%	-1.8%	-0.8%	-1.0%
By poverty levels						
Non severe poor	-1.7%	0.7%	-2.4%	-3.6%	-4.1%	0.5%
Severe poor	2.4%	0.0%	2.4%	-1.1%	-0.2%	-0.9%
By individual situation						
Non-participants	-5.3%	-1.2%	-4.1%	1.5%	-0.6%	2.1%
Unemployed	-0.1%	0.5%	-0.6%	-0.2%	-0.6%	0.4%
Employed	18.9%	4.6%	14.3%	-11.7%	-1.1%	-10.5%

Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2002-2017. Instituto Nacional de Estadística (INE).

The consequence is a two-year delay in the impact of the Great Recession on youth living arrangements, more so in the case of females, a group whose labor market status is a weaker determinant of youth living arrangements. In exploring the results of the same decomposition for the recovery versus the bust, we see that the strongest reductions in emancipation rates are precisely those of relatively well-positioned individuals, particularly if they are over 30.

We now run a variety of regressions to control for the correlation of various factors in determining the probability of youth emancipation. Given the relevance of behavioral changes in both the individual and the household labor market situation, we want to disentangle the impact of these two variables on the probability of being emancipated. As noted earlier, we include the interaction terms of both labor market status and all other household members' precariousness situations with the recession period, unemployment rates, and housing prices at the regional level. This is done to control for regional and temporal differences in the macroeconomic conditions that may affect emancipation decisions. Note that given the reverse causation problem between emancipation decisions and individual and household economic situations, we also estimate three seemingly unrelated regression models for the probability of being emancipated and the dimension of household precariousness (household employment exclusion gap) and extreme poverty. Our estimations show that these risks are interrelated and should be best estimated using a model where errors are allowed to be correlated. We use these regressions to predict the probability of a particular youth living arrangement depending on the individual labor market situation and other household members' labor market precariousness situations.

< Insert Table 3a around here >

In Tables 3a and 3b, we report the coefficients of three OLS regressions and three seemingly unrelated regressions of emancipation on age, age squared, regional dummies, recession (2009-2013) or recovery period (2014-2017), individual labor market status, other household members' precariousness situations in the labor market (proxied by our measure of household labor market precariousness or low work intensity), and the interaction of all labor market variables with the recession and recovery. We also include regional unemployment rates, log regional housing prices, and quarterly dummies as controls. We know that youth living arrangements are different by gender, so we run separate regressions for females and males. These differences are also evident in our previous descriptive analysis, where females have a larger positive emancipation trend in the bust and a larger negative one in the recovery. This

could be explained either by a larger delay in changing their emancipation pattern compared with males or, most likely, by a significantly different role of individual labor status and household labor precariousness in their emancipation decisions.

The results confirm that differences in emancipation rates are not only related to individual labor market status but also to the precariousness situations of other members of the household. Among females, those permanently employed (both full-time and part-time), the self-employed, and the inactive show the highest emancipation rates. However, if other household members are employment deprived, the probability that females are emancipated is significantly reduced. It is interesting to underline that other members' employment deprivation has a non-linear effect on female emancipation. That is, if employment deprivation is low-middle, where the relative weight of the number of hours that other household members work below their wishes is greater than 20 percent and below 80 percent of the total potential working hours of active individuals, the probability of being emancipated is significantly lower than it otherwise would be. This result is interesting because it identifies a group of households where employed females may not emancipate because they are contributing to the households' reduction of employment deprivation. If households are highly employment deprived or jobless, it is most likely that emancipation has already taken place, so individuals are not capable of helping their households to avoid poverty. A similar reasoning applies when we consider the role of extreme poverty in determining youth living arrangements. Our results clearly show that extreme poverty, meaning no income from wages or any social benefits, is more likely to affect young females who have already emancipated. Among males, we find similar results, but it is clear that individual labor market status variables have significantly larger effects on emancipation decisions for them than for females, whereas other household members' employment deprivation has a relevant yet somewhat smaller role.

< Insert Table 3b around here >

Full-time male workers with permanent contracts have the highest emancipation rate in all specifications, whereas inactivity reduces emancipation strongly (25 percent) and short-term contracts by 10 percent compared with stable ones. During the recovery years (from 2014 onward) the labor market status for males has increased its impact on emancipation decisions, meaning that those who do not have employment when the recovery provides new available posts are those who seek more family networks to maintain minimum levels of wellbeing. This is observable for both males and females. During recession periods, inactive males (not

studying) and those in part-time permanent contracts have significantly lower probabilities of being emancipated; during the recovery, all young males in other labor market situations different from full-time employment in permanent contracts are showing significantly lower probabilities of being emancipated. This means that those who do not find employment during recovery are prone to depend on their parents' economic help and thus are more likely to cohabit. Very similar results are obtained for females even if (generally) estimated coefficients are of a smaller dimension.

The main difference between males and females is the role of inactivity and part-time work. Inactive females have a significantly higher probability of being emancipated (2 to 3 percent higher than females with full-time permanent contracts), and part-time workers are between 1.5 and 2.6 percent more likely to be emancipated. Clearly, part-time is used as a method of achieving work-family balance in the case of females. Thus, being married to employed men and taking on part-time work during the childbearing years promote being emancipated for females. In light of this, as Martinez-Granado and Ruiz Castillo (2002) discuss, emancipation, marriage, and employment are still correlated decisions for females.

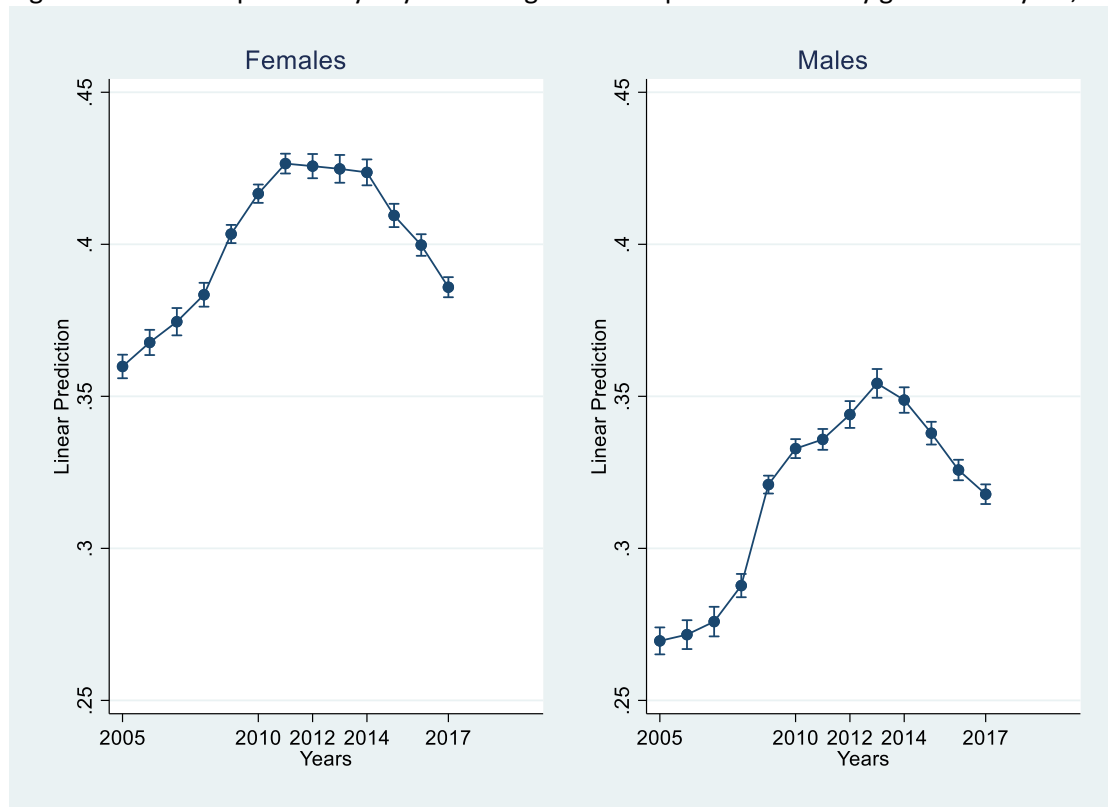
The emancipation pattern along the business cycle in Spain shows that even if a secular trend of delay in emancipation has occurred for several decades, once we control for individual labor market status (both for males and females) and other household members' employment deprivation, the recession years would have had a net positive impact on emancipation if unemployment and employment deprivation had not increased so much. Thus, the underlying emancipation trend is a positive one once we control for labor market conditions. The effect on emancipation during this period is in any case significantly smaller than that which Anh and Sánchez-Marcos (2017) identified, most likely because we now control for the impact of the labor market conditions of all of the other active co-habiting members, not just the labor market status of the young individual.

Naturally, the recovery years register a significantly higher positive impact on emancipation, more so for males than for females, whereas adverse labor market conditions for both continue to have a very relevant role in reducing the probability of cohabiting with parents. Thus, emancipation is clearly favored during the recovery, especially for males. Meanwhile, once we control for the business cycle, the main trend in emancipation decisions is a positive one.

Our results using SUR regressions show reverse causation between the emancipation decisions of young household members and household economic situations due to severe poverty, joblessness, and low work intensity. Thus, when it comes to estimating the probability of emancipation and the determinants of household precariousness, errors are correlated. If we allow for this correlation, we confirm the “adapting to circumstances” attitude result in Ayllón (2009) for both the recession and the recovery period. This implies the use of co-residence as a safety net for all household members who need it.

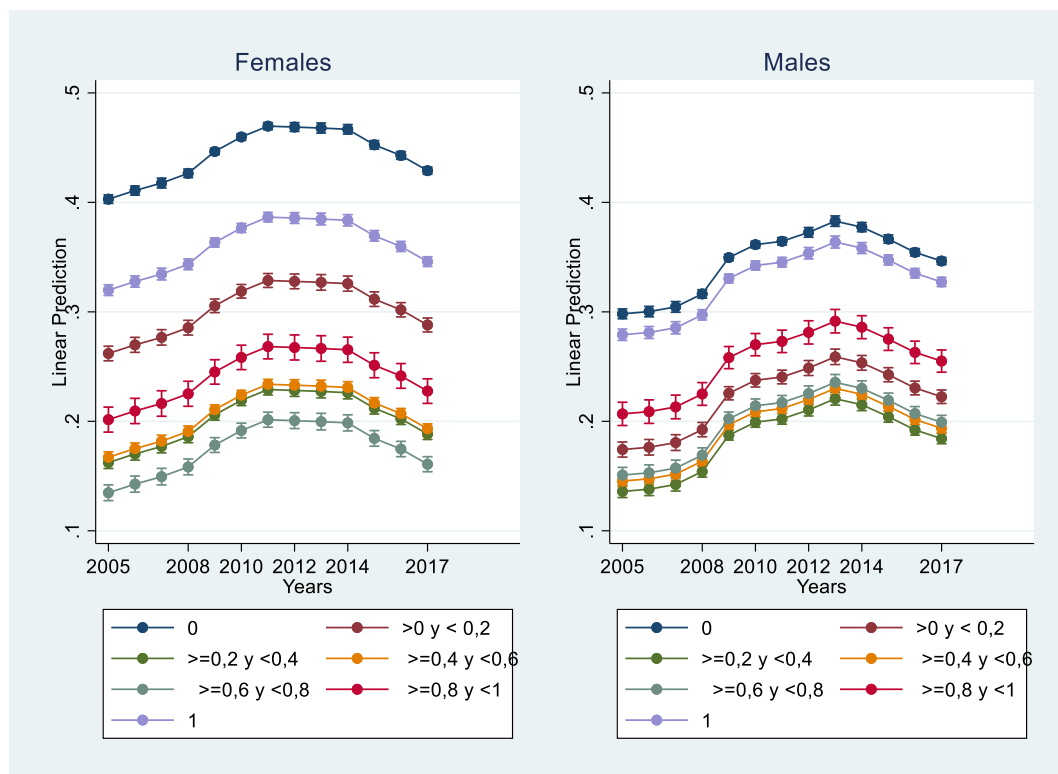
Based on our previous results, we predict the probability of youth living outside of the parental home by gender and year, household precariousness situation, and individual labor status for the 2005-2017 period. The results are depicted in Figures 6 to 9. It is interesting to compare the predicted probability of being emancipated by year with the actual percentage of emancipated individuals observed in the sample. Interestingly, even if emancipation rates decreased from 2010 onward (see Figure 5) when we control for age, individual labor status, household employment deprivation, etc., we find that a mean individual (both male and female) experienced a reduction in the probability of emancipation only from 2011 onward, and for males, this was true from 2013 onward—that is, somewhat later after the beginning of the bust. This means that the impact of recessions on observed emancipation occurs with some delay. However, it is also visible that recovery after 2014 shows no sign of impact on youth living arrangements even three years after the end of the bust (2014), both for males and females. This could be a result of the high levels of precariousness of many recovery jobs, which even if providing some relief to individual and household wellbeing do not push the probability of emancipation sufficiently upward.

Figure 6. Predicted probability of youth living out of the parental home by gender and year, 2005-2017.



Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2002-2017. Instituto Nacional de Estadística (INE)

Figure 7. Predicted probability of youth living out of the parental home by gender and other household members' employment deprivation situation, 2005-2017.



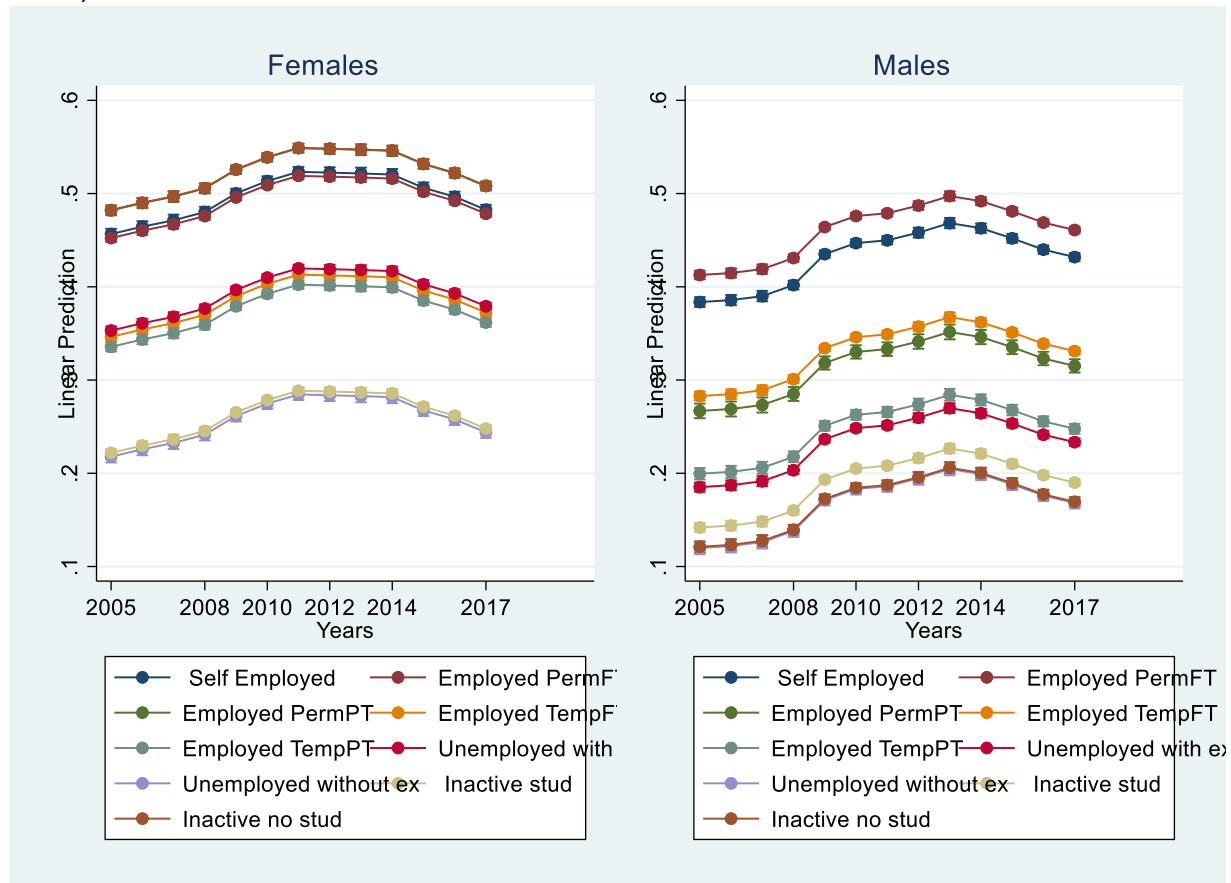
Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2002-2016. Instituto Nacional de Estadística (INE)

Figure 7 plots the probability of youth living outside of the parental home by other household members' employment deprivation levels. The results show that youth cohabiting in households whose members work less than 80 percent of their potential working hours tend to be more likely to remain in the parental home so that they may provide help to the family.

Focusing on the role of individual labor status and other household members' employment deprivation, Figure 8 shows that some particular groups of young individuals have a much lower probability of being emancipated: the unemployed and those whose other household members suffer from 20 percent to 80 percent of employment deprivation. That is, active individuals in the household work from 20 to 80 percent fewer hours than they would be willing to work. If other household members' employment deprivation is very high, other members work less than 20 percent of their potential working hours, or they are jobless (employment deprivation index equal to 1), young individuals are most likely to be found living outside of the parental home. This is because if we observe the emancipated, they are more likely to live in smaller households where other members may be dependent on their incomes. Young females show a much higher emancipation rate than males do (four times larger) if they are inactive but not studying. This shows the still-visible relevance of the inactivity of young women when deciding to transit from the parental home to marriage or cohabitation.

Regarding the determinants of household labor employment deprivation or precariousness, we use Tables 4a and 4b to report the results of the SUR regressions. We confirm that emancipated individuals have a lower probability of being in households where employment deprivation is high, but this is clearly more the case for males than for females. For females, regardless of their labor status situations, the recession period increased the level of precariousness of their cohabiting members. However, this was not the case for males; for them, the impact of the recession on their cohabiting members' employment deprivation would have been smaller if they did not suffer from unemployment. This means that the concentration of unemployment and employment deprivation in particular households is affecting males more than females. Regional unemployment rates increase household employment deprivation for both females and males.

Figure 8. Predicted probability of youth living out of the parental home by gender and individual labour status, 2005-2017.

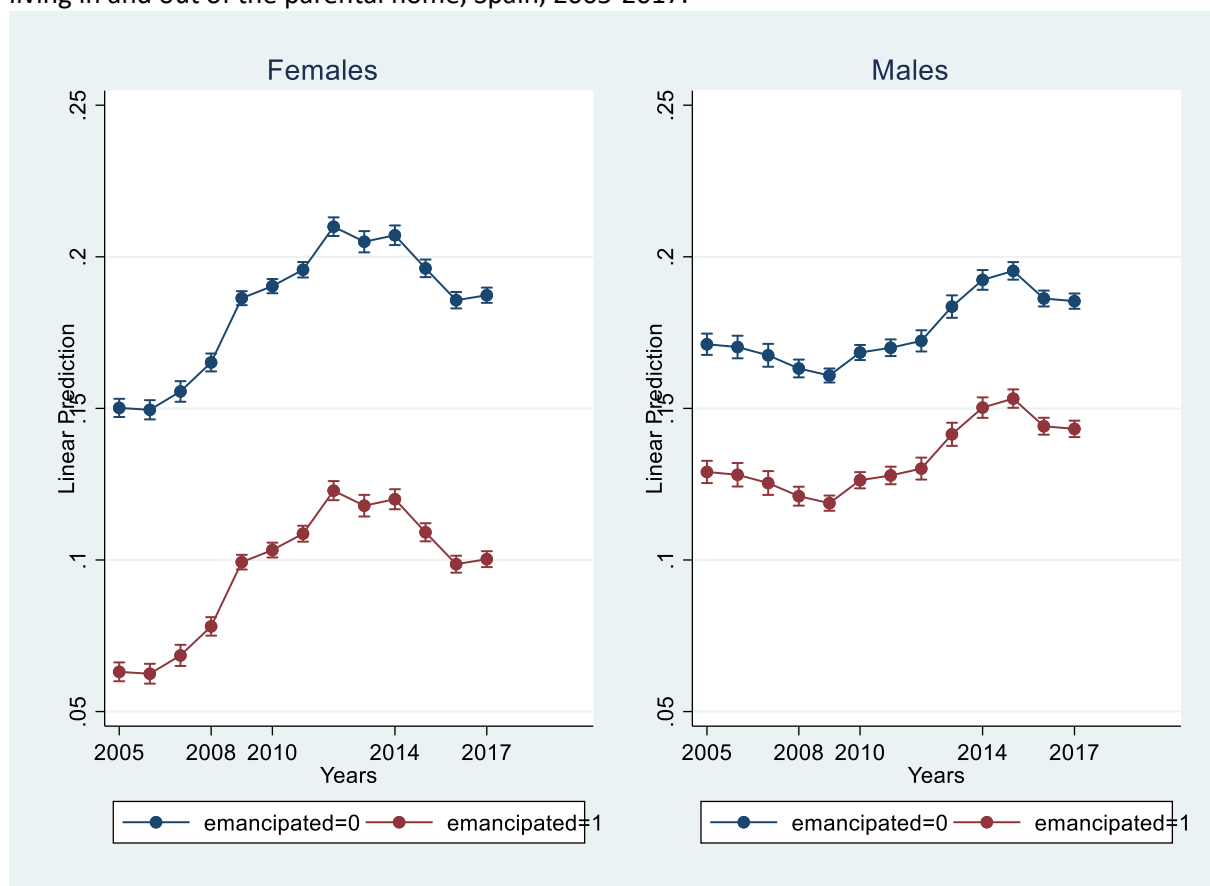


Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2002-2016. Instituto Nacional de Estadística (INE)

< Insert Table 4a & 4b around here >

Based on our previous results, we predict the employment deprivation levels of other cohabiting household members for youth living in and outside of the parental home for the 2005-2017 period. The results are depicted in Figure 9. We find that non-emancipated young males and females live in households where other household members are significantly employment deprived. For females, the recession increased the employment deprivation of other members by 25 percent (from 0.15 to 0.22 approximately), and the recovery only reduced it slightly (from 0.22 to 0.19).

Figure 9. Predicted employment deprivation levels of other cohabiting household members for youth living in and out of the parental home, Spain, 2005-2017.



Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2002-2016. Instituto Nacional de Estadística (INE)

For males, the difference in the dimension of other members’ employment deprivation depending on their living arrangements (emancipated or not) is somewhat smaller than for females. This is because emancipated females cohabit with other members who are less likely to suffer from employment deprivation, whereas in the case of males, even if they are emancipated, they tend to cohabit with more employment-deprived individuals. Interestingly, for non-emancipated males, the recession had a smaller impact on the increase of employment deprivation of other members of their households even if, as in the case of females, the current predicted levels of employment deprivation are higher than they were in 2005.

Conclusions

For a period of persistent growth, previous analyses on emancipation in Spain found a key impact of the “adapting to circumstances” attitude on youth cohabiting living arrangements: a large number of young individuals reduce their poverty risk by remaining at the parental home if both parents are employed, whereas another significant number of households reduce their poverty risk by adding cohabiting young workers’ wages to their disposable income. More

recently, Ahn and Sanchez-Marcos (2017) documented an increase in the aggregate emancipation rate among youth in Spain during the recession, which is in contrast with the results of other authors for a variety of countries.

We use the same data source (Spanish Labor Force Survey) as Ahn and Sanchez-Marcos (2017) and redefine the young as individuals below 30 or 35 years of age—the most usual thresholds in the emancipation literature. Most importantly, we consider both individual and household employment deprivation information to study the evolution and determinants of youth living arrangements for complete business cycle n . Our results show that in addition to individual labor market status, the levels of employment deprivation of other active household members are important determinants of youth emancipation decisions along the cycle in Spain. In fact, our estimation of the impact of recession years on the probability of living outside of the parental household is significantly smaller than that which these authors estimated.

Our analysis deepens the study of the relationship between young individuals' living arrangements and household poverty and employment precariousness, taking advantage of the detailed information that a large quarterly dataset can offer us on precariousness, joblessness, and extreme poverty at the household level. In particular, we confirm that adverse economic conditions, such as high rates of the temporary and part-time employment of other household members (employment deprivation), explain a delay in emancipation together with individual labor market status (or youth turning to their families for financial protection if their parents are in better positions).

In fact, one of the main contributions of this paper is to confirm that other household members' employment levels (precariousness, i.e., low work intensity, or joblessness) and economic difficulty (severe poverty) have strong effects on youth emancipation decisions using a particularly flexible employment deprivation indicator. The results thus confirm that differences in emancipation rates are not only related to individual labor market status but also related to the employment situations of other members of the household. Interestingly, other members' employment deprivation has a non-linear effect on youth emancipation. That is, if employment deprivation is low to middle, where the relative weight of the number of hours that other household members work below their wishes is more than 20 percent and below 80 percent of the total potential working hours of active individuals, the probability of being emancipated is significantly lower than otherwise. This result is interesting because it identifies a group of households where employed youth may not emancipate because they are contributing

to the households' wellbeing. If households are highly employment deprived or jobless, it is, in turn, most likely that emancipation has already taken place, so individuals are not capable of helping their households to avoid poverty. A similar reasoning applies when we consider the role of extreme poverty in determining youth living arrangements: extreme poverty in Spain is more likely to affect young individuals who have already emancipated.

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Tables

Table 3a. OLS and Seemingly Unrelated Regression results on emancipation for females (1=emancipated), 2005-2017.

	OLS	OLS	OLS	SUR	SUR	SUR
	(1)	(2)	(3)	(4)	(5)	(6)
Recession period	0.028 ***			0.031 ***		
Recovery period		0.039 ***			0.039 ***	
Labour market status (re: f-t permanent)						
Studying	-0.176 ***	-0.171 ***	-0.183 ***	-0.177 *	-0.173 ***	-0.185 ***
Inactive	0.034 ***	0.036 ***	0.017 ***	0.035 ***	0.037 ***	0.019 ***
Unemployed with experience	-0.095 ***	-0.073 ***	-0.096 ***	-0.088 ***	-0.067 ***	-0.089 ***
Unemployed (first job seeker)	-0.207 ***	-0.197 ***	-0.213 ***	-0.198 ***	-0.190 ***	-0.205 ***
Part timer - permanent	0.026 ***	0.025 ***	0.016 ***	0.026 ***	0.026 ***	0.016 ***
Part timer - temporary	-0.100 ***	-0.088 ***	-0.102 ***	-0.098 ***	-0.087 ***	-0.100 ***
Full timer - temporary	-0.092 ***	-0.078 ***	-0.083 ***	-0.092 ***	-0.077 ***	-0.082 ***
Self-employed	-0.003	0.008 **	-0.002	-0.005 ***	0.007 ***	-0.003
Interaction: recession x						
Studying				-0.018 ***		
Inactive				-0.048 ***		
Unemployed with experience				-0.001		
Unemployed (first job seeker)				-0.012 **		
Part timer - permanent				-0.024 ***		
Part timer - temporary				-0.003		
Full timer - temporary				0.027 ***		
Self-employed				0.003		
Interaction: recovery x						
Studying		-0.051 ***			-0.049 ***	
Inactive		-0.097 ***			-0.095 ***	
Unemployed with experience		-0.078 ***			-0.077 ***	

Unemployed (first job seeker)	-0.057	***						-0.053	***
Part timer - permanent	-0.043	***						-0.042	***
Part timer - temporary	-0.057	***						-0.055	***
Full timer - temporary	-0.035	***						-0.034	***
Self-employed	-0.054	***						-0.054	***

**Household precariousness
(ref: no other hh. members
employment deprived)**

low	-0.122	***	-0.119	***	-0.118	***	-0.128	***	-0.125	***	-0.125	***
low-middle	-0.187	***	-0.204	***	-0.195	***	-0.204	***	-0.220	***	-0.213	***
middle	-0.171	***	-0.185	***	-0.178	***	-0.199	***	-0.211	***	-0.208	***
middle-high	-0.184	***	-0.197	***	-0.194	***	-0.224	***	-0.233	***	-0.235	***
high	-0.129	***	-0.094	***	-0.113	***	-0.180	***	-0.141	***	-0.168	***
very high - joblessness	-0.025	***	0.027	***	0.001		-0.084	***	-0.027	***	-0.062	***

Extreme poverty

Yes	0.243	***	0.230	***	0.231	***	0.242	***	0.229	***	0.230	***
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Interaction: recession x

low	0.012	*					0.012	**
low-middle	-0.017	***					-0.018	***
middle	-0.013	***					-0.014	***
middle-high	-0.015	**					-0.015	***
high	0.040	***					0.039	***
very high - joblessness	0.053	***					0.052	***

Interaction: recovery x

low			0.008				0.008	
low-middle			0.037	***			0.037	***
middle			0.029	***			0.028	***

	middle-high		0.025 ***			0.023 ***		
	high		-0.029 **			-0.030 ***		
	very high - joblessness		-0.063 ***			-0.064 ***		
Interaction: recession x								
	extreme poor	-0.022 ***				-0.022 ***		
Interaction: recovery x								
	extreme poor		0.017 **			0.017 ***		
	Log housing prices	-0.051 ***	-0.058 ***	-0.042 ***	-0.060 ***	-0.065 ***	-0.042 ***	
	regional unemployment rate			-0.001 ***			0.000 ***	
	Constant	0.814 ***	0.858 ***	0.744 ***	0.899 ***	0.930 ***	0.758 ***	
<hr/>								
Age, age squared, quarter and regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
year dummies	No	No	Yes	No	No	Yes		
Observations	825,681	825,681	825,681	825,681	825,681	825,681	825,681	
F-Statistic	14,049	14,108	14,941	11,415	11,402	12,080		
R-squared	0.425	0.425	0.425	0.424	0.424	0.424		
Breusch-Pagan test of independence: chi2(1)				1821.962 Pr = 0.0	1577.855 Pr = 0.0	1943.767 Pr = 0.0		

Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2002-2017. Instituto Nacional de Estadística (INE). Control variables for age, age squared, quarter, year and regional dummies (NUTS-2) are also included in regressions as explanatory variables.

Table 3b. OLS and Seemingly Unrelated Regression results on emancipation for males (1=emancipated), 2005-2017.

	OLS	OLS	OLS	SUR	SUR	SUR
	(1)	(2)	(3)	(4)	(5)	(6)
Recession period	0.027 ***			0.028 ***		
Recovery period		0.051 ***			0.052 ***	
Labour market status (re: f-t permanent)						
Studying	-0.203 ***	-0.196 ***	-0.213 ***	-0.204 ***	-0.196 ***	-0.214 ***
Inactive	-0.256 ***	-0.252 ***	-0.264 ***	-0.255 ***	-0.251 ***	-0.263 ***
Unemployed with experience	-0.205 ***	-0.170 ***	-0.200 ***	-0.202 ***	-0.167 ***	-0.196 ***
Unemployed (first job seeker)	-0.235 ***	-0.220 ***	-0.241 ***	-0.231 ***	-0.217 ***	-0.237 ***
Part timer - permanent	-0.081 ***	-0.101 ***	-0.104 ***	-0.081 ***	-0.101 ***	-0.104 ***
Part timer - temporary	-0.171 ***	-0.153 ***	-0.169 ***	-0.170 ***	-0.153 ***	-0.168 ***
Full timer - temporary	-0.104 ***	-0.091 ***	-0.097 ***	-0.104 ***	-0.091 ***	-0.097 ***
Self-employed	-0.039 ***	-0.025 ***	-0.037 ***	-0.039 ***	-0.025 ***	-0.037 ***
Interaction: recession x						
Studying	-0.016 ***			-0.016 ***		
Inactive	-0.019 ***			-0.018 ***		
Unemployed with experience	0.017 ***			0.018 ***		
Unemployed (first job seeker)	-0.002			-0.002		
Part timer - permanent	-0.053 ***			-0.053 ***		
Part timer - temporary	0.014 ***			0.014 ***		
Full timer - temporary	0.020 ***			0.020 ***		
Self-employed	0.003			0.003		
Interaction: recovery x						

Studying			-0.056 ***					-0.056 ***	
Inactive			-0.052 ***					-0.051 ***	
Unemployed with experience									
			-0.092 ***					-0.092 ***	
Unemployed (first job seeker)			-0.056 ***					-0.056 ***	
Part timer - permanent			-0.019 *					-0.019 ***	
Part timer - temporary			-0.056 ***					-0.055 ***	
Full timer - temporary			-0.040 ***					-0.039 ***	
Self-employed			-0.064 ***					-0.064 ***	
Household precariousness									
(ref: no other hh. members employment deprived)									
low	-0.104 ***	-0.104 ***	-0.103 ***	-0.106 ***	-0.106 ***	-0.105 ***			
low-middle	-0.120 ***	-0.136 ***	-0.130 ***	-0.127 ***	-0.142 ***	-0.138 ***			
middle	-0.103 ***	-0.119 ***	-0.117 ***	-0.114 ***	-0.129 ***	-0.130 ***			
middle-high	-0.088 ***	-0.103 ***	-0.107 ***	-0.103 ***	-0.116 ***	-0.126 ***			
high	-0.036 ***	-0.032 ***	-0.049 ***	-0.055 ***	-0.050 ***	-0.073 ***			
very high - joblessness	0.019 ***	0.040 ***	0.014 ***	-0.005	0.020 ***	-0.013 ***			
Extreme poverty									
Yes	0.317 ***	0.342 ***	0.323 ***	0.317 ***	0.342 ***	0.322 ***			
Interaction: recession x									
low	0.004			0.004					
low-middle	-0.021 ***			-0.021 ***					
middle	-0.026 ***			-0.027 ***					
middle-high	-0.034 ***			-0.034 ***					
high	-0.022 *			-0.022 **					
very high - joblessness	-0.005			-0.006 *					

Interaction: recovery x

low	0.015	**	0.014	**
low-middle	0.031	***	0.031	***
middle	0.019	***	0.019	***
middle-high	0.004		0.003	
high	-0.026	**	-0.026	***
very high - joblessness	-0.061	***	-0.061	***

Interaction: recession x

extreme poor	0.015	*	0.317	***
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Interaction: recovery x

extreme poor		-0.036	***		-0.036	***						
Log housing prices	-0.045	***	-0.039	***	-0.009	***	-0.049	***	-0.041	***	-0.009	***
regional unemployment rate				-0.001	***					0.000	***	
Constant	1.371	***	1.316	***	1.100	***	1.402	***	1.339	***	1.107	***

Age, age squared, quarter and regional dummies

	Yes	Yes	Yes	Yes	Yes	Yes
year dummies	No	No	Yes	No	No	Yes
Observations	863,310	863,310	863,310	863,310	863,310	863,310
F-Statistic	9,209	9,254	9,817	9,828	9,842	10,423
R-squared	0.380	0.381	0.3805	0.380	0.381	0.380
Breusch-Pagan test of independence: chi2(1)				317.604 Pr = 0.0	248.381 Pr = 0.0	419.460 Pr = 0.0

Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2002-2017. Instituto Nacional de Estadística (INE). Control variables for age, age squared, quarter, year and regional dummies (NUTS-2) are also included in regressions as explanatory variables.

Table 4a. Seemingly unrelated regression results on household employment deprivation levels for females, Spain, 2005-2017.

	SUR	SUR	SUR
	(4)	(5)	(6)
Recession period	0.003 **		
Recovery period		-0.021 ***	
emancipated (1=yes)	-0.073 ***	-0.070 ***	-0.075 ***
Labour market status (re: f-t permanent employment)			
Studying	-0.035 ***	-0.046 ***	-0.038 ***
Inactive	0.026 ***	0.021 ***	0.030 ***
Unemployed with experience	0.087 ***	0.094 ***	0.100 ***
Unemployed (first job seeker)	0.110 ***	0.090 ***	0.111 ***
Part timer - permanent	0.010 ***	0.012 ***	0.015 ***
Part timer - temporary	0.021 ***	0.018 ***	0.025 ***
Full timer - temporary	0.004 ***	0.005 ***	0.007 ***
Self-employed	-0.016 ***	-0.014 ***	-0.015 ***
Interaction: recession x			
Studying	-0.008 ***		
Inactive	0.008 ***		
Unemployed with experience	0.028 ***		
Unemployed (first job seeker)	0.005		
Part timer - permanent	0.013 ***		
Part timer - temporary	0.013 ***		
Full timer - temporary	0.008 ***		
Self-employed	0.003		
Interaction: recovery x			
Studying		0.032 ***	
Inactive		0.035 ***	
Unemployed with experience		0.029 ***	
Unemployed (first job seeker)		0.067 ***	
Part timer - permanent		0.013 ***	
Part timer - temporary		0.031 ***	
Full timer - temporary		0.008 ***	
Self-employed		-0.003	
regional unemployment rate	0.007 ***	0.007 ***	0.004 ***
Constant	0.234 ***	0.235 ***	0.273 ***
Age, age squared, quarter and regional dummies			
	Yes	Yes	Yes
year dummies			
	No	No	Yes
Observations	825,681	825,681	825,681
F-Statistic	11,415	11,402	12,080
R-squared	0.424	0.424	0.424

Breusch-Pagan test of independence: chi2(1)	1821.962 Pr = 0.0	1577.855 Pr = 0.0	1943.767 Pr = 0.0
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Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2002-2017. Instituto Nacional de Estadística (INE). Control variables for quarter and year together with regional dummies (NUTS-2) are also included in the regression as explanatory variables.

Table 4b. Seemingly unrelated regression results on household employment deprivation levels for males, Spain, 2005-2017.

	SUR		SUR		SUR	
	(4)		(5)		(6)	
Recession period	-0.028	***				
Recovery period			0.007	***		
emancipated (1=yes)	-0.034	***	-0.032	***	-0.036	***
Labour market status (re: f-t permanent employment)						
Studying	-0.036	***	-0.036	***	-0.034	***
Inactive	0.018	***	0.018	***	0.022	**
Unemployed with experience	0.109	***	0.113	***	0.119	***
Unemployed (first job seeker)	0.124	***	0.110	***	0.126	***
Part timer - permanent	0.001		0.003		0.006	
Part timer - temporary	0.020	***	0.022	***	0.027	***
Full timer - temporary	0.016	***	0.018	***	0.020	***
Self-employed	-0.024	***	-0.021	***	-0.025	***
Interaction: recession x						
Studying	0.007	***				
Inactive	0.012	***				
Unemployed with experience	0.023	***				
Unemployed (first job seeker)	0.010	**				
Part timer - permanent	0.017					
Part timer - temporary	0.023	***				
Full timer - temporary	0.014	***				
Self-employed	-0.003					
Interaction: recovery x						
Studying			0.013	***		
Inactive			0.023	***		
Unemployed with experience			0.026	***		
Unemployed (first job seeker)			0.047	***		
Part timer - permanent			0.016	***		
Part timer - temporary			0.021	***		
Full timer - temporary			0.011	***		
Self-employed			-0.014	***		
regional unemployment rate	0.006	***	0.005	***	0.005	***
Constant	0.293	***	0.304	***	0.312	***
Age, age squared, quarter and regional dummies	Yes		Yes		Yes	

year dummies	No	No	Yes
Observations	863,310	863,310	863,310
F-Statistic	9,828	9,842	10,423
R-squared	0.380	0.381	0.380
Breusch-Pagan test of independence: chi2(1)	317.604 Pr = 0.0	248.381 Pr = 0.0	419.460 Pr = 0.0

Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2002-2017. Instituto Nacional de Estadística (INE). Control variables for quarter and year together with regional dummies (NUTS-2) are also included in the regression as explanatory variables.

APPENDIX

Table A1. Sample size (number of observations) by groups in the second quarter of the year.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Households	54,669	58,497	60,817	62,022	62,324	64,887	64,999	65,552	66,005	65,76	64,609	62,949	63,119
Individuals 0-15	24,208	25,202	26,186	26,341	26,115	26,912	26,856	26,939	27,02	26,653	25,732	25,005	24,808
Individuals 16-34	38,861	39,760	40,170	39,758	38,260	38,546	37,032	35,597	34,704	33,468	31,701	30,081	28,735
Individuals >34	90,949	96,631	100,318	101,999	102,024	106,862	107,078	108,854	110,185	110,077	108,443	105,747	105,841
All individuals	154,018	161,593	166,674	168,098	166,399	172,32	170,966	171,39	171,909	170,198	165,876	160,833	159,384

Source: Spanish Labour Force Survey (Encuesta de Población Activa, EPA), 2005-2017, second quarter. Instituto Nacional de Estadística (INE).