The Gender Gap in Involuntary Part-time Employment: The Case of Spain

Alfonsa Denia and María Dolores Guilló[*]
Department of Economics
Institute IUDESP
University of Alicante

Abstract

The high incidence of non-desired part-time jobs and temporary contracts after the Great Recession has become one of the most important drivers of the outstanding rise in income inequality in Spain during the last decade. We explore the determinants of involuntary part-time work in Spain over the period 2006-2014 and find that gender has a large, significant and robust positive effect on having that employment status, even after controlling for the type and duration of contracts, type of activity or occupation. A female worker is about7.4-8.3 percent more likely to have a non-desired part-time job than a male worker with the same characteristics. Moreover, working in the Public Administration or having a temporary contract increases this probability over 10 percentage points. The results highlight the persistent precariousness of the employment recovery in Spain and the need of a careful reflection on the next labor market reform.

Keywords: Gender, involuntary part-time, temporary contracts, non-standard employment, Great Recession.

1 Introduction

The number of part-time employees that would work full-time given the opportunity to do so has been rising in Spain at the average rate of 7.7 percent per year since 2007. The rise of this type of employment is a widespread effect of the recent crisis across developed countries, but it has been especially severe in Spain, where by the end of 2017 still represented 61 percent of total part-time employment, more than double of the European average.[1]According to Horemans and Marx (2013) involuntary part-time work carries the highest poverty risk across the EU-15 countries, showing that most of the cross country variation comes from differences in demand side risk factors like low pay and temporary contracts. In the case of Spain, Felgueroso (2018) and Felgueroso *et al.* (2017) find a high incidence of non-desired part-time jobs and temporary contracts on the risk of employment poverty in 2016 and 2017, and Goerlich *et al.* (2016) show that the rise in part-time jobs and temporary contracts in Spain are among the most important drivers of the outstanding rise in income inequality since 2009. In this study we assess the determinants of involuntary part-time work in Spain over the period 2006-2014 paying special attention to the type and duration of contracts. Existing literature on the characteristics and behavior of part-time workers is scarce and limited in scope. Buddelmeyer*et al.* (2004) analyze the determinants of part-time employment in Europe over the 1980s and 1990s, and conclude that although the majority of employees worked part-time voluntarily during the economic downturn of the 1990s, some policies designed to promote part-time work by lowering its labor costs relative to full-time are likely to have the perverse effect of increasing further the proportion of involuntary part-time employment. Sandor (2011) alerts about the dramatic increase of part-time employment during the last recession and the need to improve the quality of part-time jobs, highlighting the importance of this type of employment as a means to increase the flexibility of labor markets in Europe. Valletta et al. (2019) explore the determinants of involuntary part-time employment in the U.S. accounting for business cycle effects and structural factors and find that shifts in the industry composition of employment have held the incidence of involuntary part-time employment slightly more than one percentage point above its pre-recession level. Green and Livanos (2015b) emphasize the need to look at the risk of what they call involuntary non-standard (involuntary part-time and involuntary temporary) employment, especially during economic recessions. Using micro data from the European Union Labour Force Survey (EU LFS) they estimate the risk of involuntary non-standard employment over the period 2006-2010 and find that Spain stands out as the country with the highest rate (24.8%) followed by Poland (20.9%), Portugal (20.6%) and Italy (15%).

---

[1] The involuntary part-time employment as percentage of total part-time employment in the EU-28 countries and in the Euro-area are 26.4 percent and 29.2 percent in 2017, respectively (Eurostat2018).

The analysis reveals that young workers, older workers, women, non-nationals, those with low education and those who were unemployed a year ago are at greatest risk of involuntary non-standard employment, but the estimated average marginal gender effect (3.8%) is about the same order of magnitude as the old age or education effects. In this paper we use micro-data from the Spanish Labour Force Survey and find that, once we control for the type of contract, the age and education effects are non-significant or minor determinants of involuntary part-time employment, whereas the gender effect (8.3%) appears among the largest effects together with the temporary contract effect (9.4%) and the elementary occupation effect (10%).[2] Despite the limited research literature on involuntary part-time employment, there is a rising concern about its effect on labor productivity and income inequality. According to the OECD Employment Outlook 2018, the persistence of high levels of involuntary employment in Spain despite the continuous improvements in employment rates since 2013 is one of the key factors behind the decline in the Spanish real wage, which in addition to the incidence of short-term contracts puts the degree of labor security of Spanish workers among the lowest across OECD countries. Goerlich *et al.* (2016) show that about 75 percent of the increase in income inequality since 2009 is driven by the drop in households' working hours, which are implied by the poor performance of unemployment and the rise of temporary contracts and part-time jobs. The concern about the high income inequality observed in Spain compared with other European countries is also the focus of Gradin (2016), who finds that this fact is associated largely with the inequality among households that participate in the labor market. The rest of the paper is organized as follows. Section 2 puts part-time work in context and highlights some of its characteristics in Spain, Section 3 presents the econometric analysis and the main estimation results, Section 4 concludes. Finally, some descriptive statistics and other econometric results are relegated to the Appendix.

2 Putting part-timework in context

The development of part-time employment is a feature of a large number of industrial countries since the mid 1980s and shows considerable variation by gender, age, economic activity and occupation.[3] Buddelmeyer *et al.* (2008) find that institutions and other structural factors like changes in legislation are the main drivers of this development in Europe during the 1980s and 1990s, and conclude that the negative and significant effect of the economic cycle explains at most 17% of the total increase in part-time employment over the period 1992-1999. In a previous work Buddelmeyer *et al.* (2004) show that over that period part-time work is predominantly voluntary and that the economic cycle affects mostly young and male prime-age workers (those aged 25-49), being the effect unclear for women and older workers. With respect to more recent periods, to our knowledge, there is no a comparable macro-perspective study. Table 1 reports involuntary part-time rates for some European countries over the period 2006-2016. Clearly, the rise of involuntary part-time employment is a feature of Mediterranean countries, where the rates in 2016 stand well above their pre-crisis levels, especially in Spain where the rate practically doubles the pre-crisis level. Although in 2008, there were already very high rates in some countries, it is very worrying the dramatic increase in cases like Ireland, Italy, Spain, or even the Netherlands, which contrasts with the decreasing levels of Belgium or Germany. Here the involuntary part-time employment refers to the employment status of part-time workers that declare themselves working part-time because they could not find a full-time job, which is the standard definition used in Eurostat and in the Spanish Labour Force Survey. For illustration purposes, other reasons for which workers declare working part-time are shown in the first column of Table 2, where columns 2-3 and 3-4 illustrate, respectively, the weight of each reason across genders in Spain for the years 2008 and 2014. It is clear from Table 2 that reasons for working part-time other than 'full-time not found' (involuntary part-time) have, in general, lost weight (except for a slight increase in men's caring and family obligations) and that involuntary part-time has experienced a sharp increase over the period, especially for men. The strong association between involuntary part-time employment and unemployment rates over the recession period can be observed in Figure 1 for men and women, separately. Note also that the weak employment recovery starting in 2012 does not translate into an improvement of involuntary part-time employment rates, what probably reflects part of the precarious employment creation taking place in Spain over these years. This feature seems again more severe for men than for women.

---

[2]The definition of involuntary part-time workers used in EUR0STAT and in the Spanish Labour Force Survey refers to workers that declare themselves working part-time because they could not find a full-time job. In Felgueroso (2018) and Felgueroso *et al.* (2017) the definition is extended to include other non-economic reasons like care and other personal and family obligations. In the U.S. Bureau of Labor Statistics data used by Valletta *et al.* (2019), involuntary part-time workers are those that have a part-time job for "economic reasons" as opposed to "non-economic reasons".

[3] See for example 0ECD (2010).

Table 1: Involuntary part-time employment as percentage of total part-time employment in Europe, Eurostat 2016

Country/year	2006	2008	2010	2012	2014	2016
EU-28	22.7	25.6	26.9	27.7	29.6	26.3
Euro-area	24.7	25.5	28.0	29.3	31.7	29.3
Belgium	15.0	14.4	11.4	9.5	10.1	8.6
Denmark	15.2	12.7	15.6	17.5	16.9	13.0
Germany	23.1	23.0	21.7	16.3	14.5	11.3
Ireland	11.9	13.6	32.5	41.2	41.4	29.9
Greece	46.1	44.1	54.7	64.9	71.2	71.0
Spain	33.8	36.0	50.1	61.3	64.0	61.3
France	30.8	34.9	34.8	34.2	42.4	43.0
Italy	37.8	41.3	50.2	58.5	65.4	63.1
Netherlands	6.2	4.5	5.7	9.0	10.9	9.6
Poland	29.8	18.5	21.7	27.5	32.3	23.2
Portugal	34.5	40.3	42.1	47.4	49.3	41.0
Sweden	24.9	26.1	28.1	28.8	29.8	26.1
United Kingdom	9.5	n.a	n.a	19.3	18.8	14.9

Table 2: Main Reasons for working part-time, aggregate shares

	Women		Men	
	2008	2014	2008	2014
Educational or training	8.7	3.6	27.5	10.5
Care; other family or personal obligations	27.3	17.7	2.7	3.0
Illness or incapacity	1.3	0.8	2.8	1.1
Full-time not wanted	11.6	7.7	6.6	2.8
Full-time not found				
Total involuntary part-time	40.2	63.5	42.0	73.4

Figure 1: Involuntary Part-time and Unemployment
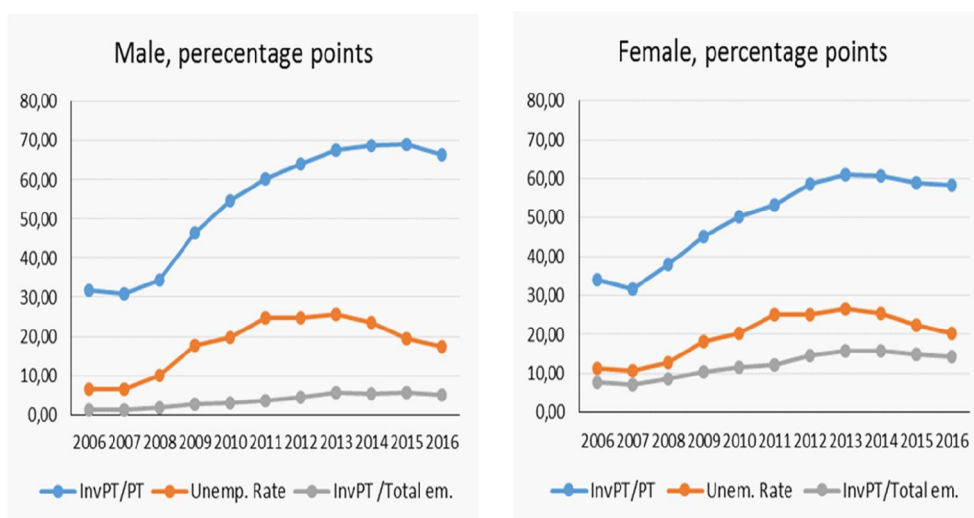
Another feature of the Spanish labor market that characterizes the employment recovery is the increasing temporality of contracts, after some years of contention.[4] There is a strong association between involuntary part-time employment and temporary contracts, affecting especially male workers. Comparing the male and female cases, Table 3 shows not only higher rates among the male population, but also a sharper and steady increase since 2006 that puts the male rate about

---

[4] See, for instance, Malo (2015)

20 percentage points higher than the female rate in 2014.

From a micro-perspective, Green and Livanos (2015b) estimate the risk of involuntary non-standard employment in 10 European countries over the period 2006-2010, where non-standard employment includes part-time jobs and temporary jobs. The analysis reveals that young workers, older workers, women, non-nationals, those with low education and those who were unemployed a year ago are at greatest risk of involuntary non-standard employment. In this study Spain stands out as the country with the highest involuntary non-standard employment rate (24.8%) followed by Poland (20.9%), Portugal (20.6%) and Italy (15%). Recent studies on the Spanish economy reveal the close connection between the rise in non-desired part-time jobs and the higher risk of suffering poverty from employment (Felgueroso, Millán and Torres, 2017; Felgueroso, 2018), or the dramatic increase in income inequality (Goerlich *et al.* 2018), putting again part-time employment in the policy debate. Despite the advances in the legislation to eliminate discrimination of part-time relative to full-time jobs, it is clear that they are not enough. The great recession has accentuated the prevalence of the negative aspects that still characterize part-time jobs like low wages, low quality, temporary contracts and limited benefits that make this type of employment undesirable from the workers' point of view.[5]

Table 3: Part-time employment and temporary contracts, Involuntary Part- time employment and temporary contracts, Spain, EPA

	2006	2008	2010	2012	2014	Full s.
MALE						
PT and Temp. (% Total)	2.41	2.46	3.14	3.76	4.91	3.26
InvPT and Temp. (% PT)	24.56	30.72	43.08	44.76	50.05	40.30
FEMALE						
PT and Temp. (% Total)	11.28	9.57	9.20	9.65	10.50	10.02
InvPT and Temp. (% PT)	22.42	21.43	25.67	28.87	29.60	25.77

3 Econometric analysis

The aim is to analyze the socioeconomic profile of an involuntary part-time worker in Spain over the period 2006-2014, trying to identify and quantify possible gaps in terms of gender, age or other personal characteristics, controlling for the type and duration of contracts and other employment characteristics. With this aim, we also introduce year-time variables to capture possible time specific effects and regional dummy variables to capture possible specific territorial and institutional effects.[6] We use microdata from the Spanish Labour Force Survey (EPA for the initials in Spanish) for the years 2006, 2008, 2010, 2012 and 2014. The EPA is a quarterly household sample survey that collects data from more than sixty thousand households. We use the standard two-step modelling estimation method based on Heckman (1979), as in Green and Livanos (2015a, 2015b). This method is adopted when the endogenous variable of interest (i.e., involuntary part-time employment) is only observable for a selected sample (having an involuntary part time job requires first that the individual decides to be part of the labor market). In order to present a more easily interpretable measure of the estimation results, we report the marginal effects of the two-step equation. In the first stage (participation regression), the control variables are six school-age intervals of dependent children and five individual's education categories. The estimation results are shown in Table A5 in the Appendix. In the second stage, the focus is on salaried workers aged between 16 and 64.

The dependent variable in the second stage is the involuntary part-time employment status as described in the previous section. The classification of jobs by type of economic activity or by type of occupation cannot be considered simultaneously in the same regression due to multicollinearity. We consider them separately in Tables 4 and 5, respectively. The individual and family controls are the standard in the literature (the presence of children has a negligible effect on the rest of variables in this stage and so it is not considered), they include marital status, sex, person of reference in the household, four age categories (more than sixty years old is the reference), and five education levels

---

[5] See for example OECD (2010) for an overview of the positive and negative aspects of part-time employment, and Ramos *at al.* (2015) for an analysis of the wage differential between part-time and full-time jobs in Spain.

[6] We have also estimated the models controlling for the regional unemployment rate instead of dummy regional variables and found very similar results.

(university degree is the reference). The market variables are the type of employer (public or private), the type of contract (temporary or permanent), and the duration of temporary or fixed-term contracts (more than a month/temporary1 or less than a month/temporary2). The economic activity is classified in five categories (the primary sector is the reference, see Table 4) and the occupations are classified in six groups (managers are the reference, see Table 5). Comparing the estimated coefficients of the rest of variables in Tables 4 and 5, it is clear that the estimations yield very close results. First of all, the individual characteristics show that women, young people and low education level individuals are more likely to have an involuntary part-time employment. In particular, the gender effect is robust to all model specifications. It varies between 7.4 percent and 8.6 percent, being stronger when jobs are classified according to occupations (Table 5). The results also confirm that the probability of having an involuntary part-time job decreases with the individual's age and education level, but also that these characteristics lose influence when introducing the type of contract. Moreover, comparing Models 2-3 (Table 4) with Models 5-6 (Table 5), it follows that the youth effect (individual's age between 16 and 24) is the only age effect that persists when jobs are classified according to occupations. Having a temporary or fixed-term contract increases the probability of involuntary part-time employment around 10 percent (compared to permanent or open-ended contracts) in all model specifications. However, when we consider the duration of temporary contracts, those that last for less than a month (temporary2) increase this probability between 4 and 2 percentage points. This feature in addition to the involuntary workday, points to the precariousness of this type of employment.

The results in Tables 4 and 5 show that the individual effects of the year and contract type variables are statistically significant separately, without interactions. The extended models of Table 6 show that these results still hold and that, in addition, the marginal effects of the combined variables are also statistically significant. Moreover, the coefficients of the year variables and the combined variables are also increasing over time in this case. For instance, having a temporary contract increases the probability of involuntary part-time employment in 5.4 percentage points in 2006 (Model 2bis), this effect becomes 7.5 percentage points in 2008, and more than 20 percent in 2014. But if the duration of the contract is less than a month (temporary 2 contract), these effects become 6.9, 9.2 and 31.3 percentage points, respectively! Furthermore, comparing the overall effect of having a temporary contract with and without interaction variables, uncovers a very interesting feature of the data. The overall effects of having a temporary contract in 2008 and 2010 are lower in the models with interaction variables (Table 6) than without interactions (Tables 4 and 5). In contrast, after the Great Recession, for the years 2012 and 2014, these effects become stronger in the models with the interaction variables. For instance, if the duration of the contract is less than a month, the contract type effect is amplified about 10 points after 2012. The estimates for the rest of variables considered in the study are not shown because they are very similar to those reported in Tables 4 and 5, respectively. To close this section, we consider an alternative measure of involuntary employment that captures the willingness of employees to work more hours as described in Table A4 in the Appendix. The new dependent variable can be seen as an indicator of a non-desired workday for all types of workers, part-time and full time workers. Both measures, involuntary part-time employment and willingness to work more hours, capture the preference of workers to have longer work days. Specifically, we repeat the estimations of models in Tables 4 and 5 but with a new dependent variable, willingness to work more hours. In this case, the female gender effect falls to 4 percent and the youth effect increases until 5 percent. Nonetheless, the probability of involuntary employment for a young female worker remains the same as in previous models. For the rest of variables the estimation results are very similar to those obtained before, but with much larger coefficients, except for the economic activity categories that now are less influential. The presentation of these estimation results are relegated to the Appendix (see Tables A6 and A7).

4 Conclusion

The main objective of this study has been to explore the determinants of the rise in involuntary part-time employment in Spain over the period 2006- 2014, before and after the Great Recession. We have used microdata from the Spanish Labour Force Survey and employed the two-step modelling estimation of Heckman (1979), as in Green and Livanos (2015a). We have provided evidence that gender had a large, significant and robust positive effect on involuntary part-time employment in Spain over the period, whereas the worker's age and other personal characteristics were much less influential. 0ur empirical strategy has controlled for regional and year effects, and paid special attention to the type and duration of contracts. We have shown that over the period 2006-2014 a female worker was about eight percent more likely than a male worker to have a non-desired part-time job, whereas a young worker (aged 16-24) was only about one percent more likely than an old one (aged more than 60). 0ther age groups were not statistically significant once the estimation controlled for temporary contracts. With respect to the type of activity, working in the Public Administration increased the probability of involuntary part-time employment by more than ten percent the same amount as working in Services—what alerts about the role of governments (especially local governments) in the creation of non-standard employment.

Table 4: Involuntary part-time employment, jobs classified by activity

	(1)	(2)	(3)
Married	−0.021*	−0.011*	−0.011*
	(0.001)	(0.001)	(0.001)
Female	0.080*	0.074*	0.074*
	(0.001)	(0.001)	(0.001)
Head	−0.006*	−0.002**	−0.002**
	(0.001)	(0.001)	(0.001)
Age 16-24	0.059*	0.009*	0.009*
	(0.003)	(0.003)	(0.003)
Age 25-39	0.022*	−0.0007	−0.0006
	(0.003)	(0.003)	(0.003)
Age 40-59	0.013*	0.005**	0.005**
	(0.003)	(0.003)	(0.003)
Primary	0.086*	0.067*	0.067*
	(0.004)	(0.004)	(0.004)
Secondary I	0.052*	0.043*	0.043*
	(0.002)	(0.002)	(0.002)
Secondary II	0.022*	0.018*	0.018*
	(0.002)	(0.002)	(0.002)
Secondary II-P	0.027*	0.022*	0.022*
	(0.002)	(0.002)	(0.002)
Public employer	−0.077*	−0.080*	−0.080*
	(0.002)	(0.002)	(0.002)
Temporary		0.109*	
		(0.001)	
Temporary 1			0.104*
			(0.001)
Temporary 2			0.138*
			(0.002)
Manufactures	0.057**	0.038*	0.041*
	(0.003)	(0.003)	(0.003)
Construction	0.013*	0.022*	0.024*
	(0.003)	(0.003)	(0.003)
Public Adm.	0.088	0.114*	0.116*
	(0.004)	(0.003)	(0.003)
Services	0.081*	0.112*	0.114*
	(0.003)	(0.003)	(0.003)
Year 2008	0.008*	0.012*	0.012*
	(0.002)	(0.002)	(0.002)
Year 2010	0.033*	0.037*	0.037*
	(0.002)	(0.002)	(0.002)
Year 2012	0.059*	0.064*	0.064*
	(0.002)	(0.002)	(0.002)
Year 2014	0.073*	0.075*	0.075*
	(0.002)	(0.002)	(0.002)
Obs	646327	646327	646327

Standard errors in parentheses. *p-v<0.001; **p-v<0.1

Table 5: Involuntary part-time employment, jobs classified by occupation

	(4)	(5)	(6)
Married	−0.020* (0.001)	−0.012* (0.001)	−0.012* (0.001)
Female	0.086* (0.001)	0.083* (0.001)	0.083* (0.001)
Head	−0.006* (0.001)	−0.002** (0.001)	−0.002** (0.001)
Age 16-24	0.057* (0.003)	0.013* (0.003)	0.013* (0.003)
Age 25-39	0.018* (0.003)	−0.003 (0.003)	−0.002 (0.003)
Age 40-59	0.009* (0.003)	0.002 (0.003)	0.002 (0.003)
Primary edu.	0.027* (0.004)	0.016* (0.004)	0.016* (0.004)
Secondary I	0.013* (0.002)	0.009* (0.002)	0.009* (0.002)
Secondary II	0.008* (0.002)	0.007* (0.002)	0.006* (0.002)
Secondary II-P	0.006* (0.002)	0.005** (0.002)	0.005** (0.002)
Public employer	−0.047* (0.001)	−0.052* (0.001)	−0.052* (0.001)
Temporary		0.094* (0.001)	
Temporary 1			0.091* (0.001)
Temporary 2			0.112* (0.002)
High skill	0.022* (0.003)	0.015* (0.003)	0.015* (0.003)
White Collar	0.008* (0.003)	0.004 (0.003)	0.004 (0.003)
Blue Collar	0.012* (0.003)	−0.002 (0.003)	−0.002 (0.003)
Low skill	0.046* (0.003)	0.039* (0.003)	0.038* (0.003)
Elementary	0.128* (0.003)	0.106* (0.003)	0.106* (0.003)
Year 2008	0.009* (0.002)	0.013* (0.002)	0.013* (0.002)
Year 2010	0.035* (0.002)	0.039* (0.002)	0.039* (0.002)
Year 2012	0.060* (0.002)	0.065* (0.002)	0.065* (0.002)
Year 2014	0.074* (0.002)	0.076* (0.002)	0.075* (0.002)
Obs	646327	646327	646327

Standard errors in parentheses. *p-v<0.001; **p-v<0.1

Table 6: Involuntary part-time employment, Temporality and year interactions. Models (2bis)-(3bis) by activity, Models (5bis)-(6bis) by occupation

	(2bis)	(3bis)	(5bis)	(6 bis)
Year 2008	0.004** (0.002)	0.004** (0.002)	0.005** (0.002)	0.005** (0.002)
Year 2010	0.018* (0.002)	0.018* (0.002)	0.019* (0.002)	0.019* (0.002)
Year 2012	0.035* (0.002)	0.035* (0.002)	0.036* (0.002)	0.036* (0.002)
Year 2014	0.043* (0.002)	0.043* (0.002)	0.044* (0.002)	0.044* (0.002)
Temporary	0.054* (0.002)		0.037* (0.002)	
Temporary*2008	0.017* (0.003)		0.019* (0.003)	
Temporary*2010	0.064* (0.003)		0.066* (0.003)	
Temporary*2012	0.108* (0.004)		0.110* (0.004)	
Temporary*2014	0.114* (0.004)		0.116* (0.004)	
Temporary1		0.051* (0.003)		0.036* (0.002)
Temporary1*2008		0.017* (0.004)		0.019* (0.004)
Temporary1*2010		0.061* (0.004)		0.064* (0.004)
Temporary1*2012		0.103* (0.004)		0.106* (0.004)
Temporary1*2014		0.105* (0.004)		0.108* (0.004)
Temporary2		0.069* (0.005)		0.042* (0.005)
Temporary2*2008		0.019* (0.007)		0.022* (0.007)
Temporary2*2010		0.076* (0.007)		0.079* (0.007)
Temporary2*2012		0.125* (0.007)		0.125* (0.007)
Temporary2*2014		0.201* (0.008)		0.195* (0.009)

Standard errors in parentheses. $*p\text{-}v<0.001$. $**p\text{-}v<0.1$

With respect to the type of occupation/skill, elementary and low skilled jobs had the lowest chances of being voluntary, followed by high skilled jobs, whereas intermediate levels as blue collar and white collar occupations (with negative and positive coefficients respectively) were not statistically significant. We have also shown that temporary contracts increased the probability of involuntary employment between 10-14 percentage points, and that the year effect was statistically significant, positive and increasing over the period. Moreover, taken into account the combined effect of the year and contract type variables, we have found that these individual effects were reinforced after 2012, year of the last labor market reform and of the employment recovery in Spain. In particular, having a very short-term contract makes involuntary part-time employment between 22-12.8 percent more likely in 2014 than in 2008 (compared to 2006), depending on whether jobs are classified by type of activity or by occupation. We conclude that the gender effect

appears among the largest determinants of involuntary part-time employment together with the temporary contract effect and the elementary occupation effect. Given the dramatic effects of non-standard employment on poverty and income inequality in Spain (e.g., Felgueroso, 2018; Felgueroso *et al.* 2017; Goerlich *et al.* 2016), our results suggest that the design of a new labor market reform that eradicates the indiscriminate use of short-term contracts and prevents the abuse of (non-desired) part-time work-weeks among female workers are a priority. Moreover, the relevance of involuntary part-time employment in the Public Administration and the spread of temporary employment require a careful analysis of the regulation and provision of vacancies in the public sector.[7]

References

Buddelmeyer, H., G. Mourre and M. Ward (2004), 'Recent Developments in Part-Time Work in EU-15 Countries: Trends and Policy', IZA DP No.1415.

Buddelmeyer, H., G. Mourre and M. Ward (2008), 'Why Do Europeans Work Part-time?', European Central Bank Working Paper Series No. 872,February.

Felgueroso, F. (2018), 'Población especialmente vulnerable ante el empleo en España en el año 2018', Estudios sobre la Economía Española2018/11, FEDEA.

Felgueroso, F., A. Millán, and M. Torres (2017), 'Población especialmente vulnerable ante el empleo en España. Caracterización y cuantificación', Estudios sobre la Economía Española -2017/07, FEDEA.

Goerlich, F.J., V. Cucarella, L. Hernández, H. García and I. Zaera (2016), 'Distribución de la Renta, Crisis Económica y Políticas Redistributivas', Fundación BBVA.

Green, A. E. and I. Livanos (2015a), 'Involuntary Non-Standard Employment and the Economic Crisis: Regional Insights from the UK', Regional Studies, Vol. 49, No. 7.

Green, A. E. and I. Livanos (2015b), 'Involuntary Non-Standard Employment in Europe', European Urban and Regional Studies, pp 1-18.

Heckman, J. (1979), 'Sample selection bias as a specification error', Econometrica, 47, 153-161.

Horemans, J. and I. Marx (2013), 'In-work poverty in times of crisis: Do part-timers fare worse?', ImPRovE Discussion Paper No. 13/14, Antwerp.

Malo, M. A. (2015), 'Labour market measures in Spain 2008-2013: the crisis and beyond', International Labour Office, Research Department. Geneva: IL0.

OECD (2010), Employment Outlook 2010, ch. 4 How good is part-time work? 0ECD Publishing, Paris.

OECD (2018), Employment Outlook 2018, ch. 1 Still out of pocket: Recent labour market performance and wage developments, 0ECD Publishing, Paris.

Ramos, R., E. Sanromá and H. Simón (2015), 'An Analysis of Wage Differentials between Full- and Part-Time Workers in Spain', IZA DP No. 9257, August.

Sandor, E. (2011). Part-time work in Europe, Eurofound 2011.

Valletta, Robert G., L. Bengali and C. van der List (2019), 'Cyclical and market determinants of involuntary part-time employment', Journal of Labor Economics 0, no. 0 (-not available-): 000. https//doi.org/10.1086/704496.

---

[7]See Malo (2015) for a comprehensive analysis of the Spanish labor market over the period 2008-2013 and a discussion of the measures and timing of different labor markets reforms.

Appendix

Table A1. Descriptive Statistics EPA 2006-2014

	Mean	Std. Dev
Individual characteristics		
Female	0.522	0.499
Head	0.447	0.497
Married	0.569	0.495
Age16-24	0.117	0.321
Age 25-39	0.228	0.419
Age 40-59	0.347	0.476
Age 60+	0.308	0.462
Primary education	0.321	0.467
Secondary education, level I	0.264	0.441
Secondary education, level II	0.118	0.322
Secondary edu., level II-Professional formation	0.066	0.249
University degree	0.230	0.421
Children 0-4	0.082	0.274
Children 5-9	0.091	0.287
Children 10-15	0.107	0.309
Children 16-19	0.080	0.272
Children 20-24	0.091	0.288
Children 25+	0.123	0.328
Employment characteristics		
Public employer	0.234	0.423
Temporary contract	0.258	0.438
Primary activities	0.023	0.149
Manufactures	0.068	0.252
Construction	0.039	0.195
Public Administration	0.104	0.305
Services	0.214	0.410
Year (4th Quarter)		
2006	0.192	0.394
2008	0.199	0.399
2010	0.204	0.403
2012	0.203	0.402
2014	0.201	0.401

Table A1 (cont.). Descriptive Statistics EPA 2006-2014

	Mean	Std. Dev
Occupation/skill		
Managers	0.030	0.171
High skill	0.067	0.250
White collar	0.093	0.291
Blue collar	0.075	0.263
Low skill	0.123	0.328
Elementary	0.058	0.233
Regions		
Andalucia	0.168	0.374
Aragón	0.042	0.201
Asturias	0.030	0.170
Baleares	0.024	0.153
Canarias	0.049	0.215
Cantabria	0.025	0.157
Castilla-León	0.100	0.298
Castilla-La Mancha	0.070	0.255
Cataluña	0.101	0.301
C. Valenciana	0.077	0.267
Extremadura	0.038	0.191
Galicia	0.105	0.306
Madrid	0.050	0.217
Murcia	0.030	0.171
Navarra	0.023	0.149
País Vasco	0.046	0.209
La Rioja	0.017	0.128
Ceuta-Melilla	0.007	0.081

Table A2. Total employment by type of workday: Part-Time vs Full-Time (%)

	2006	2008	2010	2012	2014	Full S
PT	11.72	12.19	13.21	14.80	16.02	13.50
FT	88.28	87.81	86.79	85.20	83.98	86.50

Table A3. Total employment by type of contract: Temporary vs Permanent (%)

	2006	2008	2010	2012	2014	Full S.
T	31.77	26.59	23.93	21.98	24.27	25.85
P	68.23	73.41	76.07	78.02	75.73	74.15

Table A4. Total employment by type of workday: Willingness to work more hours (%)

	2006	2008	2010	2012	2014	Full S.
PT	4.05	4.73	6.29	8.51	9.25	6.45
FT	4.37	6.12	6.48	6.82	5.49	5.84

Table A5. Participation equation

Primary edu.	-1.500^*
	(0.005)
Secondary I	-0.668^*
	(0.005)
Secondary II	-0.568^*
	(0.006)
Secondary II-P	-0.274^*
	(0.007)
Children 0-4	0.482^*
	(0.006)
Children 5-9	0.338^*
	(0.006)
Children 10-15	0.402^*
	(0.006)
Children 16-19	0.410^*
	(0.007)
Children 20-24	0.455^*
	(0.006)
Children 25+	-0.076^*
	(0.006)
Constant	0.260^*
	(0.004)
Obs.	646327

Standard errors in parentheses. *p-v<0.001. **p-v<0.1

Table A6. Willingness to work more hours, by economic activity

	(7)	(8)	(9)
Married	−0.004* (0.002)	−0.028* (0.002)	−0.028* (0.002)
Female	0.048* (0.001)	0.040* (0.001)	0.040* (0.001)
Head	0.011* (0.001)	0.017* (0.001)	0.017* (0.001)
Age 16-24	0.117* (0.004)	0.053* (0.004)	0.053* (0.004)
Age 25-39	0.083* (0.004)	0.054 (0.003)	0.054 (0.003)
Age 40-59	0.050* (0.003)	0.040* (0.003)	0.040* (0.003)
Primary education	0.149* (0.005)	0.126* (0.005)	0.125* (0.005)
Secondary education I	0.099* (0.002)	0.087* (0.002)	0.087* (0.002)
Secondary education II	0.061* (0.003)	0.056* (0.002)	0.056* (0.002)
Secundary education II-P	0.060* (0.002)	0.055* (0.002)	0.055* (0.002)
Public sector	-0.074* (0.003)	-0.078* (0.002)	-0.078* (0.002)
Temporary		0.139* (0.002)	
Temporary 1			0.130* (0.002)
Temporary 2			0.185* (0.003)
Manufactures	−0.028* (0.003)	0.014* (0.004)	0.017* (0.004)
Construction	-0.014* (0.005)	−0.001 (0.005)	−0.001 (0.005)
Public Adm.	0.037* (0.005)	0.070* (0.005)	0.074* (0.005)
Service	0.027* (0.004)	0.066* (0.004)	0.070* (0.004)
Year 2008	0.027* (0.002)	0.032* (0.002)	0.033* (0.002)
Year 2010	0.052* (0.002)	0.058* (0.002)	0.058* (0.002)
Year 2012	0.081* (0.002)	0.088* (0.002)	0.087* (0.002)
Year 2014	0.078* (0.002)	0.080* (0.002)	0.081* (0.002)
Obs	646327	646327	646327

Standard errors in parentheses. *p-v<0.001; **p-v<0.1

Table A7. Willingness to work more hours, by occupation

	(7)	(8)	(9)
Married	−0.038* (0.002)	−0.028* (0.002)	−0.028* (0.002)
Female	0.049* (0.001)	0.045* (0.001)	0.045* (0.001)
Head	0.012* (0.001)	0.017* (0.001)	0.017* (0.001)
Age 16-24	0.114* (0.004)	0.056* (0.004)	0.057* (0.004)
Age 25-39	0.078* (0.003)	0.051* (0.003)	0.052* (0.003)
Age 40-59	0.045* (0.003)	0.036* (0.003)	0.036* (0.003)
Primary education	0.071* (0.005)	0.056* (0.005)	0.057* (0.005)
Secondary education I	0.041* (0.003)	0.036* (0.003)	0.036* (0.003)
Secondary education II	0.034* (0.003)	0.031* (0.003)	0.031* (0.003)
Secondary education II-P	0.023* (0.003)	0.022* (0.003)	0.022* (0.003)
Public sector	-0.042* (0.002)	-0.048* (0.002)	-0.048* (0.002)
Temporary		0.123* (0.002)	
Temporary 1			0.117* (0.002)
Temporary 2			0.158* (0.003)
High skill	0.036* (0.004)	0.027* (0.004)	0.027* (0.004)
White collar	0.039* (0.004)	0.034* (0.003)	0.034* (0.004)
Blue collar	0.076* (0.004)	0.057* (0.003)	0.056* (0.004)
Low skill	0.088* (0.004)	0.077* (0.004)	0.077* (0.004)
Elementary	0.190* (0.004)	0.161* (0.004)	0.160* (0.004)
Year 2008	0.029* (0.002)	0.034* (0.002)	0.034* (0.002)
Year 2010	0.053* (0.002)	0.059* (0.002)	0.059* (0.002)
Year 2012	0.082* (0.002)	0.089* (0.002)	0.088* (0.002)
Year 2014	0.078* (0.002)	0.081* (0.002)	0.082* (0.002)
Obs	646327	646327	646327

Standard errors in parentheses. *p-v<0.001; **p-v<0.1