



Long-Run Economic Perspectives of an Ageing Society

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Abstract

Part time work can facilitate participation in the labor market and smooth the transition to retirement. Part-time employment, however, represents for the most part an involuntary choice. The aim of this paper is to conduct an empirical investigation of the determinants of part-time work. Using Spanish labor market data, we find that part-time work becomes a more desired employment alternative as people age, and that education and children's age have opposite effects on women and men's probabilities of voluntary part-time employment. Interestingly, most part-time work among women occurs in low-skill occupations, whereas part-time work among men are mainly concentrated in high-skill jobs

JEL Classification: C10, J20

Kew words: part-time work, retirement, involuntary employment

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1 Introduction

Part time work can offer a variety of benefits for the problems faced by aging societies. First, it can be used as an instrument to facilitate participation in the labor market and smooth the transition to retirement. Second, it can be complementary tool to policies that want to extend the legal retirement age. Third, it can be key to rise government's revenues. Within this context, a main issue that the policymaker faces is to create attractive conditions in part-time employment to make it a desired option to retirees; the existence of disadvantageous labor contract conditions often associated to part-time jobs limits the extent of part-time jobs as a voluntary choice.

Part-time work as a form of partial retirement is already a possibility in many nations. In countries like, for example, the United States about 18% of the cohort of workers born between 1931 and 1941 were in phased or partial retirement in 1998 and 2000 (Scott 2004). In Europe, part-time work programs for retirees have also been implemented; in the Netherlands, for example, about one-third of employees said their last employer offered the possibility of phased retirement (Van Soest *et al.* 2006). In Spain, about 25.5% of men employed that are 65 years old and over work part-time; among women the percentage is 38.2.

The goal of this paper is to conduct an empirical exploration of the determinants of part-time work, and the extent to which it represents an individual's preferred labor market situation. More specifically, we explore the relative importance of individual and family variables on the probabilities of part-time and full-time employment. Given that part-time work occurs more often among women, we differentiate between genders to introduce additional variation into the analyses. This is also important because men and women may have different reasons to choose part-time work.¹ The data

¹Recent studies, for example, point out that men and women not only allocate their time between market and home duties in very different ways but also that there exist important differences across countries in time use and values that can be related to the

used come from the Spanish labor force survey EPA (for the Spanish initials) and the focus is on individuals that live with a partner.

Our main empirical findings are the following. First, part-time work becomes a more desired employment alternative as people age, independently of gender; although old people's preference for PT work is weaker among women than among men. Second, education and family characteristics tend to have opposite effects on women and men's probabilities of voluntary part-time employment. Third, having grown-up children or a temporary contract increases significantly the probability of being involuntary part-time employed. Finally, after exploring the implications of different definitions of involuntary employment for the employment probabilities, we conclude that the EPA definition, which is the same as the one adopted by EUROSTAT, understates the extent of involuntary part-time employment.

The fact that part-time employment in developed countries is mainly concentrated on low educated workers and low skilled occupations in the service sector is well documented, for example, by Manning and Petrongolo (2004). They also find that there exists an important wage penalty associated to part-time employment which can be explained to a large extent by the high degree of occupational segregation, being Spain one of the countries with the largest occupational segregation. Fernandez-Kranz and Rodriguez-Planas (2009) show that the part-time pay penalty in Spain is larger and more persistent in the case of women in fixed-term contracts, whereas O'Dorchai, Plasman and Rycx (2007) show that the part-time wage

existence of social norms or gender role attitudes (Burda, Hammermesh and Weil, 2007, and Fortin 2005). For instance, in a sample of 14 EU countries Jaumotte (2004) documents the preferences of couples with small children over three working options, non-work, part-time and full-time, and compares these preferences with their actual patterns of employment. Only ten percent of the couples prefer the traditional male breadwinner model (the man works full-time and the woman does not work), but 38 percent of them have it actually, and in all countries the rate of couples preferring the man working full-time and the woman working part-time is higher than the rate of couples with this employment arrangement, which is indicative of the potential rise in participation that can arise from more and better jobs on a part-time basis.

penalty of men in Spain is negligible. This and the positive association we find between involuntary part-time employment and fixed term contracts in Spain suggest that the part-time wage penalty can be responsible of a large fraction of Spanish involuntary employment.²

The rest of the paper is organized as follows. Section 2 presents some data about Spanish part-time employment with a focus on individuals that live with a partner, trying to identify the main (individual and family) factors that shape their labor supply. Section 3 contains the empirical investigation. Section 4 concludes.

2 Part-time Employment in Spain

There are mainly two types of definitions for part-time (PT) employment: objective – a PT worker usually works less hours than those of a comparable full-time (FT) worker; and subjective – the employee’s spontaneous answer to ‘what type of employment do you have, FT or PT?’. In general, it is not possible to establish a precise distinction between PT and FT since the standard workweek can vary from one country to another or from one activity to another. In this Section we follow the subjective definition used in the Spanish labor force survey, but we explore the extension of this definition in several directions in the appendix. These extensions try to capture, on the one side, the large heterogeneity and dispersion of part-time employment relative to full-time employment and, on the other, the voluntary or involuntary character of the labor situation. In this Section we provide some data of part-time employment in Spain trying to illustrate these special features. Although EPA is a rotating panel, in some cases we use data on two different years only for purposes of comparative statics.

Table 1 clearly shows that PT employment is an important alternative

²These issues are analyzed for the case of Britain in Connolly and Gregory (2008), Paull (2008) and Booth and van Ours (2008), the case of Australia is analyzed in Booth and van Ours (2009), and the case of a developing country (Honduras) in López-Bóo, Madrigal and Pagés (2009).

Table 1: Percentage of part-time workers by age and gender, percentage

Age	Men	Women
16-54	3.9	22.6
55-64	3.5	22.9
65+	25.5	38.2
Total	4.1	22.7

Source: EPA and own calculation.

within the old population. More specifically, within the 65+ age group, 25.5 and 38.2% of employees have PT jobs among men and women, respectively; those same numbers for the total population are 4.1 and 22.7%.

Table 2, in turn, establishes that this is mainly a voluntary decision. In particular, only 0.9% of old workers among men, and 9.2% among women declare that they are PT because they do not find a FT job; whereas 30.8 and 26.3% of men and women, respectively, say that they are PT because they want to. This is the opposite to what we find for the total population: 27.6% of men are PT because they do not find a FT job, and only 10.0% because they prefer that alternative; among women, 31.2% of PT employers would like to have a FT job, and only 14.2% are happy with their current employment status. Interestingly, the table also suggests that the preference for PT work in the 65+ category is weaker among women than among men: the percentage of PT employed men that would not like to have a FT job is 30.6%, whereas the same figure for women is 26.3%; for the total population these numbers display again the opposite message.

To account for the heterogeneity of part-time employment some authors distinguish between ‘substantial’ PT and ‘marginal’ PT, depending on the number of working hours per week (e.g. it can be considered marginal up to 19 hours and substantial from 20 up to 34 hours). Table 3 illustrates this heterogeneity in the Spanish case, where we can also observe that men work more hours than women in all types of employment; one possible explanation

Table 2: Percentage of part-time workers that would like to be full-time (FT) and those who would not like, by age and gender, percentage

Age	Do not find a <i>FT</i> job		Do not want a <i>FT</i> job	
	Men	Women	Men	Women
16-54	31.0	32.5	7.5	13.0
55-64	19.5	22.8	15.5	22.7
65+	0.9	9.2	30.8	26.3
Total	27.6	31.2	10.0	14.2

Source: EPA and own calculation.

to this fact is that women hold part-time jobs for very different reasons than men do, what somehow conditions the type of labor contract they have. The reasons of having a PT job given in the survey are reported in Table 4 and correspond to all possible answers to the question ‘*why do you have a part-time employment?*’³

In each year box of Table 4, the second and fourth columns report the gender distribution of a given answer (row) and the third and fifth show how often each answer is given by men and women (col.), respectively. For example, 47.4 percent of workers who have a PT job because they are undertaking some education or training program are men in 2000 and this share has fallen to 42.8 in 2008; whereas 13.7 percent of men and only 4.2 percent of women in 2000 have it for that reason. This table also reveals that having a PT job due to family obligations is mainly a women’s motive. The fact that most of PT workers that do not want a FT job are also women (around 82 percent in 2000 and 80 per cent in 2008) goes probably in the same direction, since these data usually correspond to women being in households where men hold FT jobs. Moreover, the majority of workers that have a PT job because they have not found a FT one are also women.

³Since 2004 the ‘type of activity’ developed is not listed as a possible reason of having a part-time job, and ‘family obligations’ is split into two different reasons, ‘taking care of children and other dependent adults’ and ‘other family reasons’.

Table 3: Total worked hours per week, household's reference person or spouse.

	Men		Women	
	2000	2008	2000	2008
FT				
mean	43.14	43.9	40.47	38.89
sd	7.92	8.09	6.73	6.77
PT				
mean	19.96	19.27	17.87	19.14
sd	6.06	7.07	6.72	7.10
Substantial PT				
mean	22.73	23.24	22.33	23.22
sd	3.20	3.55	3.07	3.66
Marginal PT				
mean	11.88	11.14	11.01	11.26
sd	4.05	4.74	4.33	4.70

Source: EPA and own calculation.

Finally, if we are interested in the profile of a PT worker, we cannot ignore the unemployed. Unemployed workers have preferences about the type of workweek they want. Table 5 reports the frequency of different workweek types searched for by unemployed workers. We can see that the distribution of each searching option across genders has remained practically the same but the distribution of all options within each gender has experienced important changes. For example, searching for *FT only* and searching for *FT as the first option (FT, PT)* have become more and less important over the years, respectively. The same thing happens for the categories *PT only* and *PT as the first option (PT, FT)*. In other words, preferences about workweek types have become more polarized. Thus, if we want to properly account for the determinants of the (voluntary) PT labor supply we have to account also for those unemployed that seek for a PT job. So, first of all, we have to specify what do we mean by a (voluntary) PT worker (unemployed or employed).

Table 4: PT employment reasons across genders (row) and for each gender (column), percentage

2000	Men		Women	
	Row	Col.	Row	Col.
Education, training	47.4	13.7	52.6	4.2
Illness	60.0	3.0	40.0	0.6
Family obligations	1.2	0.6	98.8	13.7
FT not found	22.0	22.5	78.0	21.9
FT not wanted	16.1	4.1	83.9	5.9
Type of activity	20.9	37.0	79.1	38.2
Other reasons	26.3	18.1	73.7	13.9
Unknown reason	13.1	0.6	86.9	1.7

2008	Men		Women	
	Row	Col.	Row	Col.
Education, training	42.8	26.2	57.2	8.5
Illness	43.8	4.5	56.2	1.4
Family obligations	5.4	3.4	94.6	14.3
Children care	1.4	1.2	98.3	17.5
FT not found	17.7	27.6	82.3	31.2
FT not wanted	14.7	10.0	85.3	14.2
Other reasons	34.0	26.3	66.0	12.4
Unknown reason	26.9	0.9	73.1	0.6

Population: household's reference person or spouse.

Source: EPA and own calculation.

Table 5: Unemployed searching options across genders (row) and for each gender (column), percentage

2000	Men		Women	
	Row	Col.	Row	Col.
FT only	53.9	20.8	46.1	12.6
FT, PT	38.5	27.6	61.5	31.2
PT, FT	15.7	0.9	84.3	3.4
PT only	17.6	1.5	82.4	5.1
Any type	42.2	49.2	57.8	47.7

2008	Men		Women	
	Row	Col.	Row	Col.
FT only	52.2	57.0	47.8	47.0
FT, PT	38.5	6.9	61.5	7.7
PT, FT	15.6	0.6	84.4	1.7
PT only	19.9	6.1	80.1	13.3
Any type	41.4	29.3	58.6	30.4

Population: household's reference person or spouse.

Source: EPA and own calculation.

Table 6: Individuals who want to work more hours by hours worked, age group and gender, percentage

Age	+35		20-34		1-19	
	Men	Women	Men	Women	Men	Women
16-54	7.4	4.6	26.9	27.4	40.4	48.0
55-64	2.8	1.7	7.9	11.9	28.6	31.3
65+	2.0	0.0	0.0	8.3	10.0	18.2
Total	6.8	4.3	24.2	26.0	38.0	45.6

Source: EPA and own calculation

With respect to the unemployed we could just say that she is a PT seeker if she is searching for PT only or for PT as the first option, but with respect to the employed there is not such a clear cut between voluntary and involuntary. For instance, we could say that an involuntary PT employed worker is a worker with a PT job who wants to work FT or more hours, whereas a voluntary PT employed worker does not want a FT job. But then we were left with a large number of PT employed workers who are neither voluntary nor involuntary.

Table 6 illustrates the importance of the distinction between a free choice (voluntary) and a constrained (involuntary) employment situation. It shows that the percentage of workers who prefer to work more hours is quite high for people with ‘marginal’ PT and that the majority of workers who want to work more hours, both substantial and marginal PT, are in the 16-54 year group. In the empirical analyses of Section 4 we try to solve this ambiguity combining the reasons of having a PT employment with a control variable for hours.

3 Model and Results

The aim in this Section is to find the factors that shape the profile of a (voluntary) part-time worker. As discussed above we cannot ignore unemployed individuals searching for a part-time job, so we try to explore the determinants of different labor situations including full-time employed and full-time seekers, voluntary part-time employed and part-time seekers, and involuntary part-time employed. The first problem we face is that the voluntary or involuntary nature of the part-time labor status that comes from employed and unemployed individuals responds to very different circumstances and factors. In the theoretical framework individuals take wages and technologies as given and choose the employment supply option that maximizes their utility subject to their budget constraint. In the data, however, individuals

have a labor status that can be different from their first-best option, depending for example of how long they have been searching for a part-time work or the availability of full-time jobs.

3.1 Measurement

There are some peculiarities in the employment categories that we find in the data that are worth mentioning. On the one side, in the estimation of employment probabilities it is a common practice to include inactive as well as unemployed individuals in the same non-work category (e.g., Bardasi and Gornick, 2003), but unemployment is usually an involuntary status. On the other side, part-time employment can be also involuntary. Hence, to explore the implications of accounting for involuntary situations, we propose (i) to include unemployed workers either in the part-time or in the full-time categories depending on their job searching options, and (ii) to distinguish between voluntary and involuntary part-time employed workers depending on the reasons of having a part-time job and the willingness to work more hours. That is, we need to address two questions: how to classify the unemployed individuals into part-time and full-time workers and how to classify the part-time employed individuals into the voluntary and involuntary employment situations.

To address the classification of unemployed workers between part-time and full-time workers the only available information we have comes from the job searching categories reported in Table 5. This classification could be done trying to order the searching options categories according with the workers' preferences, but then the question is whether these preferences follow really an order or not, see for instance Baslevent (2002). From a worker's perspective, the five searching options can be ordered in different alternative ways but the order itself can be influenced by the length of the unemployment spell, as Table 7 illustrates. This Table shows the distribution of the five searching options for each of the unemployment spells in EPA 2008.

Table 7: Job searching distributions by unemployment spells 2008

Months	FT only		FT/PT		PT/FT		PT only		Any type	
	Men	Wom	Men	Wom	Men	Wom	Men	Wom	Men	Wom
$m < 1$	64.7	49.9	3.9	5.4	1.0	2.7	6.9	19.8	21.6	20.2
$1 \leq m < 3$	59.5	40.1	7.6	8.4	0.2	1.9	6.9	20.8	24.4	27.8
$3 \leq m < 6$	57.8	40.0	8.2	10.2	0.2	3.3	6.1	17.5	26.3	28.1
$6 \leq m < 12$	54.6	36.1	7.3	8.8	1.5	2.5	5.9	18.1	29.6	32.9
$12 \leq m < 18$	50.9	37.2	8.1	6.6	0.9	2.6	5.4	19.1	32.6	32.8
$18 \leq m < 24$	47.1	36.0	5.8	9.5	0.5	3.1	8.3	17.3	35.9	32.4
$24 \leq m < 48$	46.3	31.9	8.7	9.4	0.3	2.3	2.8	17.5	39.4	37.5
$48 \leq m$	48.8	36.2	5.6	7.8	0.8	2.8	3.6	14.9	40.5	36.6

For longer unemployment spells the options full-time only or part-time only become less frequent and the option searching for any type more frequent, whereas there is not a clear pattern for the rest of searching alternatives.

To explore further the influence of unemployment duration on the part-time searching option we have estimated different multinomial specifications and obtained similar results in all of them. In Table 8 we report the marginal effects of a multinomial logit with three possible states, searching full-time only, searching part-time only and searching either, which includes the other 3 searching options. The sample consists of unemployed individuals aged between 16 and 64 that live with a partner and are either the household's head or the partner of the household's head. The individual characteristics are age (and square age, as a control variable) and education (four different levels, primary, secondary first level, secondary second level and university), which are not only proxies for experience and productivity, they also can influence the age and number of children. The family variables are marital status (non-married includes single, divorced and widowed), the partner's employment, the partner's unemployment, age of children (six school-age intervals), the presence of other employed adults living in the household,

Table 8: Searching options, multinomial logit marginal effects

	Women		Men	
	PT only	Either	PT only	Either
Age	0.055 (0.007)	-0.010 (0.008)	0.011 (0.003)	-0.015 (0.009)
Age2	-0.0001 (0.00008)	0.0001 (0.0001)	-0.0001 (0.00003)	0.00009 (0.0001)
Edu2	0.062* (0.023)	-0.070* (0.025)	0.032** (0.017)	-0.078* (0.027)
Edu3	0.006 (0.024)	-0.076* (0.027)	0.064 (0.026)	-0.120* (0.028)
Edu4	0.00003 (0.029)	-0.161* (0.030)	0.092* (0.044)	-0.137* (0.034)
Married	0.0425* (0.0216)	0.0450** (0.027)	-0.008 (0.009)	-0.076* (0.033)
Em.par.	0.0435** (0.026)	0.0142 (0.032)	-0.013** (0.008)	0.020 (0.026)
Un.par.	-0.024 (0.035)	0.0853* (0.042)	-0.023* (0.007)	0.011 (0.034)
Child1	0.131* (0.024)	-0.077* (0.025)	0.006 (0.008)	-0.017 (0.03)
Child2	0.091* (0.021)	-0.048* (0.023)	0.010 (0.008)	-0.049** (0.027)
Child3	0.015 (0.089)	-0.012 (0.023)	-0.002 (0.007)	-0.019 (0.027)
Child4	-0.051* (0.020)	0.017 (0.026)	0.0006 (0.009)	0.028 (0.031)
Child5	-0.039 (0.025)	0.066* (0.032)	-0.005 (0.010)	-0.058 (0.037)
Em.other	0.024 (0.028)	-0.045 (0.031)	0.010 (0.012)	0.034 (0.040)
Adult65	0.006 (0.045)	-0.013 (0.054)	-0.016 (0.001)	0.044 (0.064)
Search	-0.006 (0.003)	0.020* (0.0042)	0.002** (0.001)	0.027* (0.0053)
Obs.Total		3131		1939
Log likel.		-3183.768		-1400
Ps.R ²		0.051		0.075

(*) and (**) stand for significance at the 5 and 10 percent levels, respectively; s. e. in parenthesis.

The dependent var is 0 if looking for a FT only, 1 if PT only, 2 if Either (FT/PT or PT/FT or Any type)

and the presence of other adults older than 64.⁴ The variable ‘search’ is an ordinal variable that accounts for the different lengths of the unemployment spells. Note that the marginal effect of search duration is irrelevant for the ‘part-time only’ option and significant for the ‘either’ option in the case of women, whereas both effects are significant and positive in the case of men. Other noticeable gender asymmetries are that being married or having small children have positive and significant effects for women, and negative and not always significant for men. So these two variables arise as possible determinants (positive effects) of the (voluntary) part-time labor supply of women and full-time labor supply of men.

Moreover, since there is not a clear mapping from the unemployed searching categories to the categories of full-time and part-time workers, in the estimations that follow we have decided to classify as part-time workers all the unemployed individuals that search for ‘part-time only’ or for part-time as the first option, and to consider the rest of the unemployed as full-time workers (except in Definition 1, where seekers that would be willing to work part-time are excluded), see bottom panel of Table 9 .

Next, we turn to issues related to the classification of part-time employment between voluntary and involuntary. This can be done combining at least two criteria: (i) the hours criterium, which accounts whether the worker prefers working more hours or not and (ii) the reasons criterium, which accounts for the reasons of having a part-time work (Table 4). A selection of alternative ways for the classification of these employment categories is given in the top panel of Table 9. The official statistics classification (Def. EPA) identifies the involuntary part-time employment with the share of part-time workers that have not found a full-time job, so in this case the voluntary part-time employment share will include the rest of part-time employment categories described in Table 4. One way to solve this ambiguity

⁴All the model specifications also include dummy variables for the Spanish regions which are not reported. We have also estimated all the models including instead the regional unemployment rates and found very similar results.

Table 9: Alternative definitions for employment categories

Voluntary (PT) and Involuntary (IPT) Part-Time employment	
Definition 1	VPT: FT not wanted IPT: FT not found
Definition 2	VPT: FT not wanted IPT: other than FT not wanted
Definition 3	VPT: FT not wanted+ other reason if not want more hours IPT: FT not found + other reason if want more hours
Def. EPA	VPT: other than FT not found IPT: FT not found
Part-Time (PTU) and Full-Time (FTU) Unemployment	
For all Def.	PTU: searching PT only + PT as first option
All but Def. 1	FTU: searching FT only + FT as first option + any type
Only Def. 1	FTU: searching FT only

using the reasons criterium is to define the voluntary part-time employment as the number of workers that do not want a full-time job and compute the involuntary part-time employment as the residual (Definition 2) or as those that have not found a full-time job (Definition 1). Notice that Definition 1 is the less ambiguous of all, but the problem with this definition is that we loose a lot of observations and part-time employment is very heterogenous. In the next section we explore the implications of these alternative employment definitions, and those of unemployment described above, for the labor status probabilities of all individuals.

3.2 Results

We analyze the influence of individual and family characteristics on the labor status of women and men, exploring the implications of the different employment definitions discussed above. The sample consists of all individuals aged between 16 and 64 that live with a partner and are either the household's head or the partner of the household's head. The set of explanatory variables is the same as that in Table 8 except for the 'search' variable. Tables 10 and 11 report the marginal effects of the ordered and multinomial models for women and men, respectively, under Definition 2. In the statistical appendix we show that the significance of grown up children and adults over 64 depends on the definition used, but in general all definitions yield similar results. For women, the probability of choosing full-time work decreases with the presence of children of any age, although the marginal effects become less negative for older children, whereas the marginal effects are positive (but small) if the alternative is part-time work. As we can observe, this relationship between children and labor status is just the opposite in the case of men. A similar conclusion arises for the marital status, being married decreases the probability of full-time by 12 per cent and increases slightly the probability of part-time in the case of women, whereas the signs of the marginal effects are again the opposite in the case of men. Moreover,

Table 10: Women's labor status under Definition 2., marginal effects

	ordered model			multinomial model	
	NW	PT	FT	PT	FT
Age	-0.031* (0.003)	-0.001* (0.0001)	0.033* (0.003)	0.002* (0.001)	0.030* (0.012)
Age2	0.0005* (0.000031)	-0.00002* (0.00001)	-0.0006* (0.00003)	-0.00003* (0.00001)	-0.0005* (0.00003)
Edu2	-0.0715* (0.0072)	-0.0034* (0.0004)	0.075* (0.008)	0.0055* (0.0034)	0.068* (0.008)
Edu3	-0.197* (0.0072)	-0.012* (0.0006)	0.209* (0.008)	-0.007* (0.0032)	0.204* (0.008)
Edu4	-0.352* (0.0057)	-0.030* (0.0011)	0.382* (0.006)	-0.018* (0.0029)	0.375* (0.006)
Married	0.116* (0.010)	0.008* (0.0009)	-0.123* (0.011)	0.003 (0.004)	-0.122* (0.011)
PartnerE	-0.099* (0.009)	-0.003* (0.0002)	0.102* (0.010)	0.006 (0.004)	0.095* (0.010)
PartnerU	-0.169* (0.0013)	-0.0013* (0.0014)	0.182* (0.014)	0.011 (0.171)	0.166* (0.015)
Child1	0.175* (0.010)	0.003* (0.0002)	-0.178* (0.010)	0.001 (0.004)	-0.181* (0.010)
Child2	0.083* (0.008)	0.002* (0.0002)	-0.085* (0.009)	0.006* (0.032)	-0.085* (0.009)
Child3	0.023* (0.008)	0.0009* (0.0003)	-0.024* (0.008)	-0.0006 (0.003)	-0.024* (0.008)
Child4	0.011 (0.008)	0.0005 (0.0031)	-0.012* (0.009)	-0.009 (0.003)	-0.013* (0.009)
Child5	0.004 (0.010)	0.0002 (0.0004)	-0.004 (0.010)	-0.009 (0.004)	-0.007 (0.010)
OtherE	0.0003 (0.009)	0.00001 (0.0004)	0.0003 (0.010)	0.005 (0.004)	0.002 (0.010)
Adult65	0.028* (0.013)	0.0010* (0.0004)	-0.029* (0.014)	0.009** (0.005)	-0.026** (0.014)
LIMIT_1	1.453* (0.255)				
LIMIT_2	1.661* (0.255)				
Obs.Total	33427			33427	
Log likel.	-23170			-23086	
Ps.R ²	0.153			0.156	

Table 11: Men's labor status under Definition 2, marginal effects

	ordered model			multinomial model	
	NW	PT	FT	PT	FT
Age	-0.016* (0.0013)	-0.0004* (0.00006)	0.016* (0.0014)	-0.00008 (0.0002)	0.016* (0.0013)
Age2	0.0003* (0.00001)	-0.000007* (0.000001)	-0.00026* (0.00002)	0.000002 (0.000002)	-0.00025* (0.00001)
Edu2	-0.015* (0.0030)	-0.0004* (0.00009)	0.015* (0.0030)	0.00013 (0.00082)	0.014* (0.003)
Edu3	-0.013* (0.0031)	-0.0003* (0.00009)	0.014* (0.003)	0.0013 (0.0010)	0.012* (0.003)
Edu4	-0.035* (0.0029)	-0.0009* (0.00013)	0.036* (0.0029)	0.004* (0.0016)	0.032* (0.003)
Married	-0.019* (0.007)	-0.0005* (0.0002)	0.0200* (0.007)	0.000004 (0.0007)	0.020* (0.007)
PartnerE	-0.031* (0.0028)	-0.0008* (0.0001)	0.032* (0.003)	-0.0002 (0.0005)	0.031* (0.003)
PartnerU	-0.013* (0.0045)	-0.0004* (0.00013)	0.014* (0.0049)	-0.0016* (0.0006)	0.014* (0.005)
Child1	-0.024* (0.005)	-0.0006* (0.0002)	0.0242* (0.0052)	-0.0004 (0.0006)	0.025* (0.005)
Child2	-0.008** (0.005)	-0.0002** (0.0001)	0.0079** (0.0048)	-0.0006 (0.0006)	0.008** (0.005)
Child3	-0.013* (0.004)	-0.00034* (0.0001)	0.014* (0.0037)	-0.0005 (0.0006)	0.013* (0.004)
Child4	-0.012* (0.0033)	-0.0003* (0.00009)	0.012* (0.0034)	-0.0009** (0.0005)	0.012* (0.003)
Child5	-0.008* (0.004)	-0.0002* (0.0001)	0.0079* (0.0037)	-0.0012* (0.0006)	0.008* (0.004)
OtherE	-0.0099* (0.0035)	-0.0003* (0.0001)	0.0101* (0.0036)	0.00006 (0.0008)	0.0097 (0.0035)
Adult65	-0.0034 (0.0044)	-0.00009 (0.0001)	0.0035 (0.005)	0.0001 (0.001)	0.032 (0.005)
LIMIT_1	1.263* (0.534)				
LIMIT_2	1.293* (0.533)				
Obs.Total	31245			31245	
Log likel.	-9044			-8996	
Ps.R ²	0.258			0.262	

in the case of women, the presence of adults older than 64 in the household has a positive and significant effect on the probability of part-time and a negative and significant effect on the probability of full-time, but none of the coefficients are significant in the case of men. Finally, it is worth noting that, regardless of gender, the higher is the education level the higher is the probability of having a full-time job, whereas in the case of part-time employment things are very different across genders: more education decreases the probability of part-time employment for a woman but it only matters the university degree and with a positive effect for the employment probability of a man.

3.3 Robustness

To check the robustness of the results, we now restrict the sample to salaried individuals and add a set of employment related variables as controls. These variables include four categories for the type of activity and occupation that are defined from the EPA socioeconomic classification, primary sector, blue-collar, white-collar/professional and service sector (base category); the ‘contract’ variable takes the value 1 if the employment contract is permanent and 0 if it is temporary; the ‘private’ variable takes the value 1 if the individual is employed in the private sector and 0 if employed in the public sector; finally, the variable ‘hours’ takes the value 1 if the individual wants to work more hours and 0 otherwise.⁵

The purpose is to analyze the relative impact of individual, family and job related variables on the probabilities of three possible employment situations: voluntary part-time, involuntary part-time and full-time. Due to sample limitations this kind of multivariate analysis cannot be done for the

⁵We have also included four firm size categories in an extended model and find that these variables are very significant, being more likely to have PT with small firms than with large firms. These results are available only for the year 2000 and can be obtained from the authors upon request.

Table 12: Salaried workers, marginal effects

	Women			Men		
	(1)	(2)	(3)	(1)	(2)	(3)
Age	-0.028 (0.033)	-0.062* (0.003)	-0.005 (0.003)	0.003* (0.0006)	0.0026* (0.0005)	0.002* (0.0004)
Age2	0.00003 (0.00004)	0.00003 (0.00004)	0.000002 (0.0004)	-0.00004* (0.0001)	-0.00003* (0.0001)	-0.00003* (0.00000)
Edu2	0.061* (0.010)	0.046* (0.010)	0.042* (0.010)	-0.00008 (0.003)	-0.0005 (0.002)	0.00004 (0.002)
Edu3	0.149* (0.009)	0.113* (0.010)	0.103* (0.010)	-0.003 (0.003)	-0.0014 (0.002)	-0.0005 (0.002)
Edu4	0.246* (0.009)	0.155* (0.011)	0.140* (0.012)	-0.012* (0.004)	-0.005 (0.003)	-0.004** (0.002)
Married	-0.025* (0.011)	-0.038* (0.010)	-0.062* (0.010)	0.010* (0.0032)	0.005* (0.0024)	0.003** (0.018)
Epartner	0.021 (0.014)	0.0074 (0.013)	-0.002 (0.013)	-0.012 (0.002)	-0.0059 (0.0015)	-0.001 (0.001)
Upartner	0.023 (0.021)	0.030 (0.019)	0.054* (0.018)	-0.008* (0.004)	-0.0058** (0.003)	-0.001 (0.002)
Child1	-0.150* (0.012)	-0.153* (0.012)	-0.173* (0.013)	-0.003 (0.003)	-0.0027 (0.002)	-0.002 (0.002)
Child2	-0.077* (0.010)	-0.083* (0.010)	-0.088* (0.011)	-0.0006 (0.0022)	-0.0006 (0.002)	-0.0001 (0.001)
Child3	-0.022* (0.093)	-0.025* (0.009)	-0.020* (0.009)	0.00009 (0.002)	0.00006 (0.002)	0.0008 (0.001)
Child4	-0.010 (0.010)	-0.009 (0.010)	0.005 (0.010)	0.0021 (0.002)	0.0017 (0.002)	0.001 (0.001)
Child5	0.013 (0.012)	0.012 (0.012)	0.012 (0.012)	0.006* (0.002)	0.004* (0.002)	0.003** (0.0016)
Eother	-0.021** (0.013)	-0.010 (0.012)	-0.005 (0.013)	-0.006 (0.004)	-0.0045 (0.003)	-0.003 (0.002)
Adult65	0.015 (0.019)	0.009 (0.018)	0.016 (0.019)	0.004 (0.003)	0.003 (0.003)	0.003 (0.002)
Primary		0.190* (0.0051)	0.181* (0.005)		0.005* (0.002)	0.004* (0.0015)
Blue col.		0.163* (0.006)	0.152* (0.006)		0.013* (0.002)	0.010* (0.0015)
Profess.		0.032* (0.010)	0.025* (0.011)		-0.002 (0.002)	-0.003** (0.0016)
Contract		0.164* (0.010)	0.111* (0.010)		0.022* (0.003)	0.011* (0.002)
Private		-0.210* (0.007)	-0.197* (0.007)		-0.005* (0.001)	-0.004* (0.001)
Hours			-0.528* (0.016)			-0.064* (0.008)
Obs.	14576	14576	14576	19470	19470	19470
R ²	0.068	0.154	0.239	0.036	0.075	0.151

(*) and (**) stand for significance at the 5 and 10 percent levels, respectively; s.e. in parenthesis.

The dependent var is 1 if FT, 0 if PT.

Table 13: Gender asymmetries of salaried workers, binary estimations

	Family	Personal	Market
Men	Married (+) Children (not)	High education (-) Rest education levels (not)	Professional (-)
Women	Married (-) Children (-)	↑ Education ⇒ ↑ Coef All education levels (+)	Professional (+)

male population, so we propose to make gender comparisons through binary estimations and restrict that multinomial estimation to the female population.⁶

The binary choice model we propose takes the self-reported labor situations in the labor force survey (full-time or part-time) but tries to control for involuntary employment using the ‘hours’ criterium. To do that, the set of explanatory variables related to the job characteristics includes the variable ‘hours’ capturing whether the worker wants to work more hours or not. The estimation results are reported in Table 12. Clearly, the variable ‘hours’ improves considerably the explanatory power of the model, which can be indicative of the relevance of involuntary part-time employment. The negative sign and significance of this coefficient reflect that the involuntary employment situation is positively related to part-time employment. The decrease of the contract type coefficient (all coefficients of the market variables decrease) suggests that the desire of working more hours is mainly associated to temporary contracts regardless of gender.

It is clear from Table 12 that the inclusion of the market variables improves considerably the explanatory power of the models and, at the same time, implies similar values and significance levels for most individual and

⁶The few observations for men with a PT job do not allow to split the sample into voluntary and involuntary PT workers.

Table 14: Salaried women's labor status, marginal effects

	Vol PT	Inv PT	FT
Age	0.00313 (0.0024)	0.036 (0.018)	-0.0068* (0.003)
Age2	0.00000 (0.00003)	-0.0004** (0.0002)	0.00004 (0.00004)
Edu2	-0.02208* (0.0075)	-0.021* (0.005)	0.043* (0.009)
Edu3	-0.0541* (0.0074)	-0.053* (0.005)	0.107* (0.009)
Edu4	-0.0794* (0.0086)	-0.069* (0.006)	0.148* (0.010)
Married	0.0447* (0.007)	-0.005 (0.006)	-0.040* (0.009)
Epartner	-0.0069 (0.0099)	-0.0004 (0.008)	0.007 (0.013)
Upartner	-0.0384 (0.012)	0.008 (0.013)	0.031** (0.018)
Child1	0.1439* (0.010)	0.012* (0.006)	-0.156* (0.012)
Child2	0.0705* (0.008)	0.010** (0.006)	-0.080* (0.010)
Child3	0.0147* (0.006)	0.009** (0.005)	-0.024* (0.009)
Child4	-0.0045 (0.010)	0.012* (0.006)	-0.007 (0.009)
Child5	-0.0101 (0.008)	-0.0007 (0.007)	0.011 (0.011)
Eother	-0.0178** (0.012)	0.028 (0.007)	-0.010 (0.012)
Adult65	0.007 (0.009)	0.008 (0.011)	0.010 (0.017)
Primary	-0.1072* (0.004)	-0.070* (0.003)	0.178* (0.0027)
Blue col.	-0.0877* (0.004)	-0.066* (0.003)	0.153* (0.006)
Profess.	-0.0195* (0.007)	-0.011** (0.006)	0.031* (0.010)
Private	0.1288* (0.005)	0.072* (0.004)	-0.200* (0.007)
Contract	-0.0379* (0.007)	-0.118* (0.007)	0.157* (0.009)
Obs.Total			14579
Log likel.			-9052
Ps.R ²			0.142

(*) and (**) significance at the 5 and 10 percent, respectively; s. e. in parenthesis.

The dependent var is 0 if Voluntary PT, 1 if Involuntary PT, 2 if FT.

family variable coefficients. One remarkable feature is the change of the ‘married’ coefficient relative to the non-market case, it increases (decreases) by more than fifty percent in the case of women (men). That is, the marital status tends to be more (less) relevant for women (men) when we consider job characteristics. Moreover, some of the gender asymmetries that showed up in the multinomial estimations in the non-market framework of the previous section (all individuals) also arise here in the binomial estimations (only employed individuals). Being married and having children decrease the probability of full-time employment for a woman, whereas for men being married increases the probability of full-time and having children is in general not significant; furthermore, education is in general not significant in the case of men, only matters at the highest level and has a negative influence on full-time employment, whereas in the case of women all education categories are significant and more education increases the probability of full-time employment. A related feature is that working as a professional has opposite effects across genders, it increases (decreases) the probability of having a part-time employment for a man (woman). A summary of these important gender asymmetries is reported in Table 13, although they should be interpreted with caution due to the small number of male observations.

Finally, we estimate a multinomial model for women where we distinguish between voluntary and involuntary part-time employment. The aim of this final stage is to confirm the importance of involuntary employment and to identify the profile of a voluntary (involuntary) part-time worker. In this case, the dependent variable takes the value 0 if the status is voluntary part-time, the value 1 if the status is involuntary part-time and the value 2 if it is full-time. Table 14 reports the marginal effects on the probabilities of the different labor situations when we use Definition 3, which combines the ‘reasons’ of having a part-time job with the willingness to work more hours (i.e., the ‘hours’ criterium). Using Definition 2 instead, as we did in the non-market framework, yields similar results. Note that now with this

choice of definition the explanatory variable ‘hours’ is not necessary, since whether the worker wants to work more hours or not is already accounted for in the definitions used (see Table 9).

As above, the inclusion of the market variables adds substantial explanatory power to the model and both the signs and significance levels of most variables here are similar to those in the non-market setup. For concreteness Table 14 only reports the extended model with the market variables. The results complement those of Table 12 in that they confirm the importance of accounting for involuntary employment in the study of part-time situations and throw some light on the profile of a voluntary PT female worker. It is clear now that more education decreases the probability of involuntary and voluntary part-time jobs and that being ‘married’ and having small children are very important determinants of voluntary part-time employment. Indeed whereas the sign of the marginal effect of being ‘married’ is negative on both the involuntary part-time and the full-time probabilities, it is positive on the probability of voluntary part-time. Moreover, having an unemployed husband decreases the probability of a voluntary part-time job. With respect to children, it is clear that their age is crucial for the work-week type of a woman living with a partner, children aged 11 or less (child1 to child3) increase the probability of having a voluntary part-time job and decrease the probability of having a full-time job by 14 per cent and 15 per cent, respectively. These probability effects and the difference between the voluntary and involuntary part-time effects become weaker with the age of children. Furthermore, having children aged above 10 is not significant for voluntary employment but it increases the probability of involuntary part-time employment by 1.2 percent if children are aged below 16.

Finally, the influence of job characteristics on the employment probabilities confirms the effects found in the binary estimation of Table 12.

4 Conclusion

Part-time employment is a recent phenomenon. It surged in the mid nineties as a possible mechanism to conciliate family responsibilities and market work, for both men and women. Now it is also seen as a mechanism to transit to retirement.

Our empirical study has focused on the features of part-time employment in Spain, and also analyzed the extent of part-time employment as a voluntary choice for employed and non-employed individuals. It has been developed in two stages. In the first stage we have omitted market variables and consider both non-employed and employed individuals. The unemployed population was split between part-time and full-time workers according with their workweek searching options, and the population employed part-time was classified into part-time or full-time workers according with their voluntary (do not want a full-time job) or involuntary employment situation. In the second stage, we have included some market variables as controls and restricted the analysis to employed individuals. The inclusion of the market variables improved considerably the explanatory power of the model and, at the same time, kept similar values and significance levels for most individual and family coefficients.

Results pointed out to a positive association between temporary contracts and the presence of involuntary part-time employment, independently of gender. In contrast, being married and having children decreased the probability of full-time employment for a woman, but not for a man. For men, education only mattered at the highest level and, in contrast to the case of women, it favored part-time employment. Furthermore, we estimated the profile of a part-time employed woman using the extended definitions of voluntary and involuntary part-time employment; the results clearly showed the importance of education in reducing the woman's probability of involuntary employment, as well as the highly significant positive effect of being

married and having small children on the probability of voluntary part-time employment.

We have also found that part-time work becomes a more desired employment alternative as people age. Interestingly, old people's preference for PT work is weaker among women than among men. These findings put part-time employment as a main policy tool to smooth the transition to retirement, especially among men, and mitigate the financial problems associated with the aging society.

Appendix

A Descriptive Statistics

Variable	Women		Men	
	Mean	S.D	Mean	S.D
Married	0.908	0.289	0.903	0.295
Age	43.21	10.61	44.54	10.16
Age2	1979.91	913.09	2086.77	896.71
Edu1	0.265	0.441	0.237	0.426
Edu2	0.292	0.456	0.307	0.461
Edu3	0.260	0.438	0.289	0.454
Edu4	0.184	0.387	0.166	0.371
Child1	0.173	0.378	0.185	0.388
Child2	0.184	0.387	0.196	0.397
Child3	0.217	0.412	0.232	0.422
Child4	0.165	0.374	0.175	0.380
Child5	0.315	0.464	0.308	0.462
Epartner	0.784	0.411	0.551	0.497
Upartner	0.036	0.185	0.065	0.247
Ipartner	0.180	0.384	0.384	0.486
Eother	0.251	0.433	0.245	0.430
Adult65	0.051	0.219	0.050	0.218
Primary sector	0.040	0.196	0.0527	0.224
Service sector	0.528	0.499	0.181	0.385
Private sector	0.307	0.461	0.501	0.500
Blue collar	0.074	0.263	0.369	0.483
Professional	0.348	0.476	0.386	0.486
Contract type	0.323	0.467	0.514	0.499
Hours	0.050	0.217	0.051	0.22

Source: EPA 2008

B Alternative Classifications of Employment

The next table describes the 2008 female results of the ordered model for the alternative definitions listed in Table 9. The dependent variable takes on 0 if the status is non-work, on 1 if the status is voluntary part-time employment or unemployment searching for a part-time job, and on 2 if the status is full-time employment, involuntary part-time employment or unemployment searching for a full-time job.

Women ordered model, alternative labor status definitions

	Def 1	Def 2	Def 3	EPA Def
Age	0.081* (0.007)	0.081* (0.006)	0.076* (0.006)	0.081* (0.006)
Age2	-0.001* (0.00008)	-0.001* (0.00008)	-0.001* (0.00007)	-0.001* (0.00007)
Edu2	0.235* (0.022)	0.193* (0.020)	0.203* (0.020)	0.222* (0.019)
Edu3	0.632* (0.023)	0.555* (0.022)	0.544* (0.021)	0.573* (0.021)
Edu4	1.285* (0.027)	1.141* (0.026)	1.136* (0.024)	1.169* (0.024)
Married	-0.329* (0.031)	-0.306* (0.030)	-0.316* (0.028)	-0.279* (0.027)
Epartner	0.249* (0.024)	0.252* (0.023)	0.246* (0.022)	0.253* (0.021)
Upartner	0.428* (0.047)	0.497* (0.044)	0.523* (0.042)	0.418* (0.042)
Child1	-0.516* (0.025)	-0.427* (0.024)	-0.542* (0.023)	-0.491* (0.022)
Child2	-0.250* (0.022)	-0.199* (0.021)	-0.258* (0.020)	-0.242* (0.019)
Child3	-0.079* (0.021)	-0.058* (0.020)	-0.081* (0.019)	-0.077* (0.018)
Child4	-0.036** (0.021)	-0.029 (0.021)	-0.024 (0.020)	-0.027 (0.019)
Child5	-0.023 (0.023)	-0.010 (0.024)	-0.013 (0.023)	-0.014 (0.022)
Eother	0.022 (0.025)	-0.001 (0.024)	-0.002 (0.023)	0.010 (0.023)
Adult65	-0.045 (0.034)	-0.067* (0.033)	-0.056** (0.032)	-0.045 (0.031)
LIMIT_1	1.075* (0.158)	0.917* (0.149)	0.723* (0.143)	0.982* (0.139)
LIMIT_2	1.220* (0.158)	1.041* (0.149)	0.999* (0.143)	1.423* (0.139)
Obs.total	30131	33448	33448	33448
Log likel.	-21272	-23202	-27239	-29254
Ps.R ²	0.165	0.152	0.133	0.129

(*) and (**) stand for significance at the 5 and 10 percent levels, respectively; s.e. in parenthesis.

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