

An analysis of the compatibility between disability pensions and employment in Spain *

Host Country Report

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Introduction

Contributory pensions for permanent disability are financial benefits to cover the loss of wages suffered by an individual whose ability to work is determined to be permanently reduced or impaired, after being affected by a pathological or traumatic process as consequence of an illness or accident. Usually, these pensions are closely related to inactivity of beneficiaries. However, many times disability does not mean disability for all type of working activities but only for some. As OECD (2007) remarks, people with a partially-reduced work capacity should not leave the labour force and should be supported to find, or remain in, an appropriate job, improving social integration of people with disabilities and rising their living standards.

Nevertheless, the main line of research concerning pensions and disability focuses on finding the effects of pensions on the disincentives to work. In this vein, the Parsons' seminal article (Parsons, 1980) shows how disability pensions were used by American males as an indirect way to early retirement. Further studies have confirmed such a use of disability pensions (Bound *et al.*, 1999; Kreider y Riphahn, 2000) and even some authors have linked the recent decrease in the labour market participation of disabled people in the US to the new rights created by the ADA (American with Disabilities Act) passed in 1990. De Leire (2000) found that on average over the post ADA period, employment of men with disabilities was 7.2% lower than before the Act was passed. Similar results were obtained by Acemoglu and Angrist (2001). However, these authors point out that although the number of disability transfer payments went up, this cannot on its own explain the decline in employment. Finally, Burkhauser and Daly (2002) analyse how the income transfers for people with disabilities have a complex design and there are strong interactions with other benefits.

In this paper, we analyse an interesting feature of the Spanish institutional system on disability pensions, as the eventual simultaneity of disability pensions and working. In fact, one of the disability pensions is conceived as fully compatible with work (if the new occupation is rather different than the occupation for which the person was declared as disabled by Social Security). But, in addition, the other two main disability pensions are also compatible with working (with some limitations).

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We will focus our analyses and discussions on the relationship of disability pensions with labour market participation. This relationship is closely related to the legal regulation of pensions. On the Spanish case, previous literature (Malo, 2004) has shown a negative effect of receiving any sort of benefits or subsidies on the labour market participation of persons with disabilities, stressing that probably the most important factor behind this negative effect is not the replacement rate but the design of the income transfers system. In special, this would be the case of disability pensions, because of a sort of 'benefit trap' related with a marginal tax rate of 100 percent on new labour income and/or restrictions and legal uncertainties about how to make transitions from disability pensions to work and how to make compatible both income sources. Therefore, a crucial issue will be the determinants of receiving a disability pension and, at the same time, being a worker.

The basic information on which the study has been conducted is based in the Longitudinal Sample of Working Lives from the Spanish Ministry of Employment and Social Affairs. This information contains an organised group of anonymous micro data extracted from administrative records that constitute a representative sample of all persons who have been linked to Social Security in a given year. The data from this sample refer to the contributing population and/or pensioners in a given year and the past history of those selected for the sample.

For the present specific study the sample chosen has referred to people with contributory disability pension in 2007. For each of these pensioners there are available data referring to the first employment spell, the year of the take up of the pension and subsequent developments in that position until 2007, including periods when pension and work have been compatibles. Because of the data base, we will limit ourselves to the analysis of contributory pensions, although non-contributory disability pensions presumably have a similar relationship with working incentives.

The descriptive and econometric analyses the relevance of some aspects related to the disability pension such as:

- Entitlement age of people who are entitled to pension in 2007.
- Pensioners who combine their pension with work, both in 2007 or at any previous time since they began to receive the pension.
- Characteristics of the pension that relate to gender distribution, age, career prior to the declaration of disability and pension amount.
- Estimation of a model which allows to know the determinants of compatibility between pension and labour, using variables such as personal characteristics, characteristics of the pension and labour market trajectories previous to the pension entitlement.

Disability pensions and incentives to work

There are four different levels of contributory pensions for permanent disability in Spain: partial permanent disability for the usual occupation; total permanent disability for the usual occupation; absolute permanent disability for all types of work and outstanding disability.

The partial permanent disability for the usual occupation is a disability that decreases one third or more the worker's ability to perform his/her occupation, but this disability allows the worker to

realize the basic skills of the occupation. It is compatible with performing any working activity and with keeping the previous job held. This type of disability is not related with a disability pension, but only with a unique and lump-sum transfer.

The total permanent disability for the usual occupation is a disability that limits the worker from performing all main tasks in his or her profession, as long as the worker is able to take up a different profession. The corresponding pension is compatible with performing a different job in the same company or in a different one.

The absolute permanent disability for all types of work is a disability that absolutely limits a worker from performing the basic skills of any profession or trade. The pension does not prevent profit or non-profit activities being carried out. However, they should be compatible with his/her disability level and not related with a change in the ability to work for revision purposes. Otherwise, the qualification could be changed into a total permanent disability.

Finally, the outstanding disability is a permanent disability which requires caring from a third person for the most basic daily activities, such as getting dressed, moving around, eating, etc. The compatibility of the corresponding pension with work is the same than for the absolute permanent disability.

Data

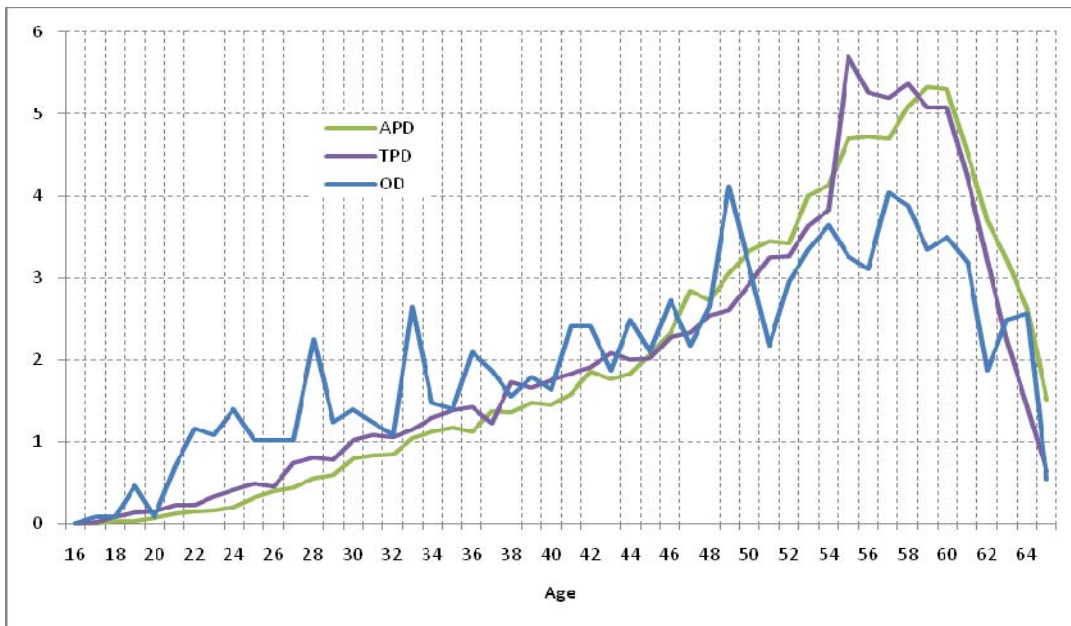
As we explained before, we focus on individuals who have at the same time a disability pension and a job. Presumably, this simultaneity could be an incentive to participate in the labour market, because being employed does not imply to lose the pension.

The administrative database provided by the Spanish Ministry of Employment and Social Affairs (MCVL, *Muestra Continua de Vidas Laborales*) offers information about contributory pensions and the labour market trajectory. This database includes people who have any record in Social Security files related directly or indirectly with the labour market in 2007 (a job, a contributory pension or an unemployment benefit) and the whole labour market trajectory of these people since their first employment spell until the end of 2007.

From the file of pensioners, we have selected all the persons who have a disability pension in 2007. For the members of this group, we have all their previous employment spells.

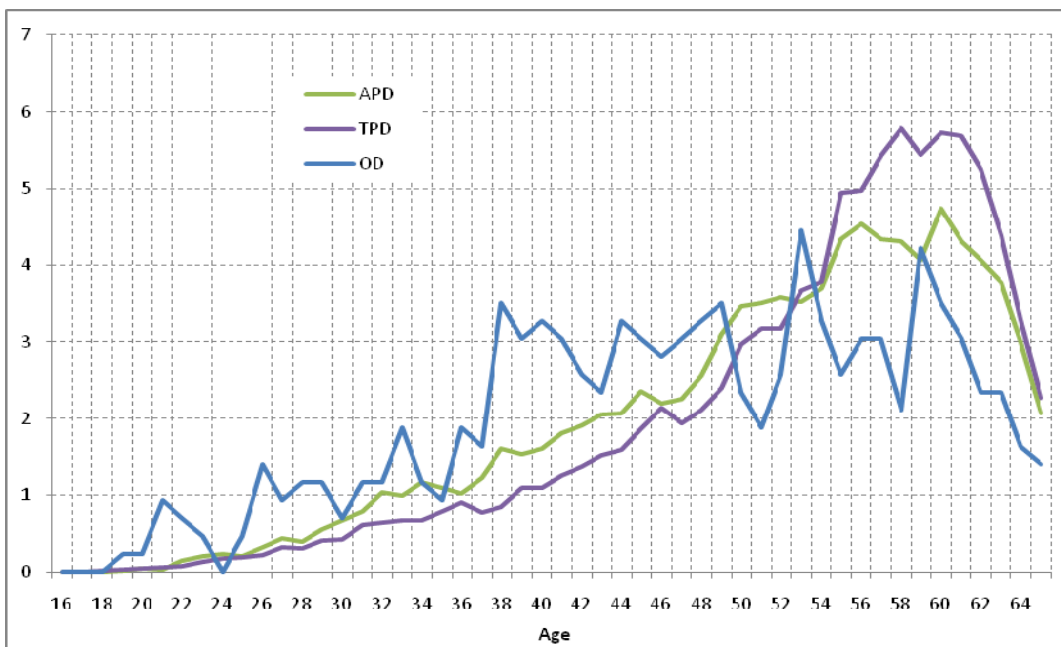
In Figures 1 and 2, we present the proportion of people who is entitled for a pension according to their entitlement age. We observe that the majority of the people access to the pension when they are 55-60 years old in the case of men (Figure 1) and 55-64 in the case of women (Figure 2). For outstanding disability, there is more variability with a wider range (48-60 years old for men and 40-60 for women).

Figure 1. Age to which people are entitled to a pension (proportion over each kind of pension). Men



Source: own elaboration from MCVL 2007.

Figure 2. Age to which people are entitled to a pension (proportion over each kind of pension). Women



Source: own elaboration from MCVL 2007.

For the analysis of the compatibility between pensions and employment we have restricted our sample to people under 65 years old¹. We have information for 34.674 persons receiving a

¹ When people are 65 years old their disability pensions are transformed into retirement pensions.

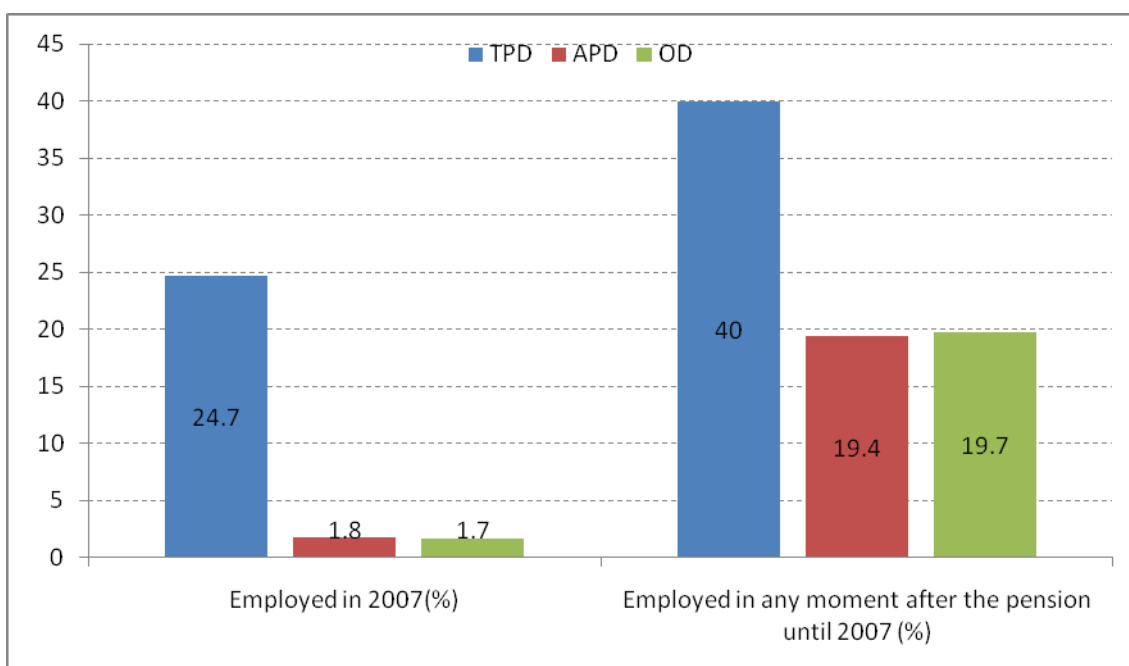
disability pension and, from this group, 14.8 per cent are working (6.9 per cent women and 18,5 per cent men). Distribution depending on degree of disability is as follow:

	Hombres	Mujeres
TPD	31,4	11,1
APD	2,1	1,1
OD	2,1	0,7

The highest percentage corresponds to total permanent disability, as we expected, because these people can explicitly perform a different job (there are not legal uncertainties about this point).

We have also calculated the proportion of pensions for those who have worked in any moment since the recognition of the pension until 2007. Obviously, this rate is higher for the three types of pensions but in the case of total permanent disability the percentage doubles the other two types.

Figure 3. Pensioners who work according to the kind of pension



Pension type and employment

Characteristics of pensioners having a job and not having a job are shown in Table 1. There are relatively more men among those working and they are younger than the group of pensioners who do not have a job. They also have entered the labour market younger (20.1 years old vs. 24.4 years old). With respect to the age people are entitled to a pension, the recognition of this right took place before they were 40 years old in the case of the pensioners who work. For the group of those not working, this recognition was at the age of 45 years. They have worked more time in absolute and in relative terms (as a percentage of the potential working experience).

With respect to the number of employment spells, the mean is 15. This figure could seem high but we have to consider that the number of fixed-term contracts in Spain is high and all the people in the sample were affected by the reform in 1984. In fact, the number of employment spells decreases with age, because older people were relatively less affected for this reform (they spent more time in the labour market before 1984). Taking as reference the last employment spell before the permanent disability, a 31.9 per cent was employed with a fixed-term contract².

Table 1. Characteristics of pensioners

	Total	Employed in 2007		Employed in any moment after the pension until 2007	
		Yes	No	Yes	No
Women (%)	31,8	14.8	34.8	23.0	35.8
Age in 2007					
< 44	17.1	36.7	13.6	23.5	14.2
45-49	12.3	19.7	11.0	15.1	11.0
50-54	16.5	19.0	16.1	18.8	15.5
55-59	23.5	15.5	24.9	20.6	24.8
60-64	30.7	9.0	34.5	22.0	34.6
Average age:					
In 2007	53.4	47.3	54.4	51.2	54.3
At the 1st employment spell	23.8	20.1	24.4	21.8	24.7
At the beginning of the pension	45.9	38.3	47.2	40.6	48.3
Working experience:					
Total (years)	18.9	15.0	19.6	16.4	20.0
Potential working experience (years)	22.1	18.2	22.7	18.8	23.5
Total / potential (%)	85.5	82.7	86.1	87.2	85.2
Employment spells:					
Number	15,0	16.5	14.8	14.7	15.2
Average duration (years)	3,7	2.2	3.9	2.8	4.1
Sample (n)	34,674	5,127	29,547	10,776	23,898

At first sight, the incentive to work seems to be much correlated with the amount of the pension. The highest benefits correspond to the outstanding disability and this group presents a low percentage of workers. The people with a total permanent disability or an outstanding disability present the lower pensions and the greater percentage of workers. However, as this disability definition corresponds strictly with *disability to work* we can interpret these results as a correlation of higher levels of labour market participation with lower levels of working disability. In addition, people with outstanding disability (who enjoy the highest disability pension and the highest levels of working disability) have a slightly higher level of labour market participation than pensioners with an absolute permanent disability.

However, if we disaggregate by type of pension (Table 2) we observe that the amount is higher for non-employed people in all the categories (around 20 per cent). In addition, analysing total permanent disability (the disability pension with more beneficiaries) the shape of the distribution is quite different (see Figure 4): for employed individuals the concentration is higher in the lowest amounts.

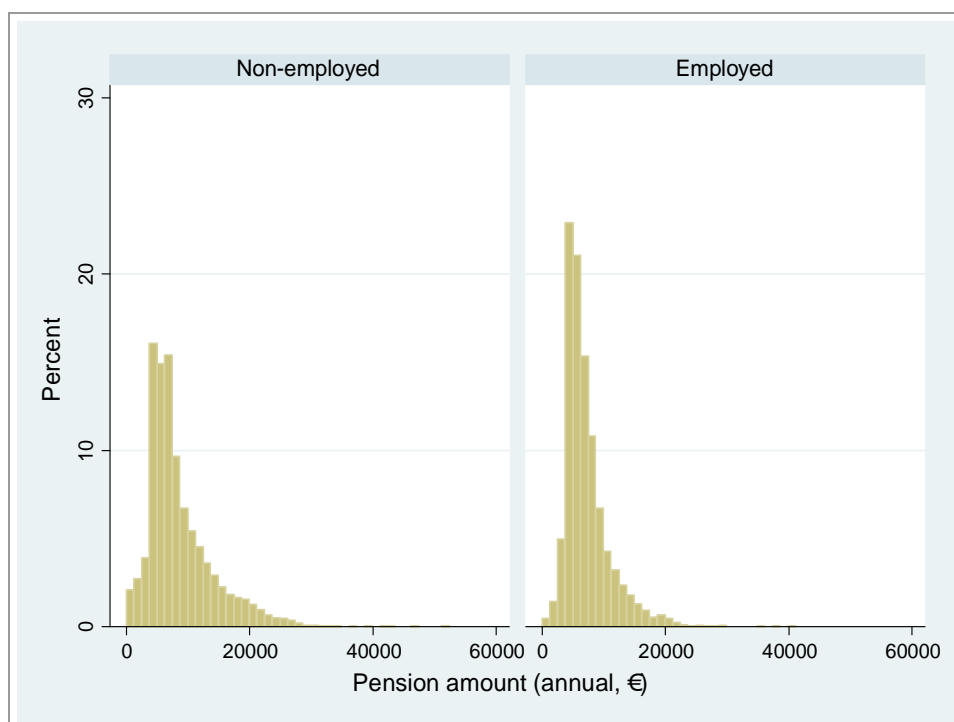
Table 2. Pension amount (annual average) according to the level of pension (in euros)

² For employment spells previous to 1991 we cannot distinguish between fixed-term or permanent contracts (because the characteristics of the MCVL) so we cannot estimate properly the proportion of temporal contracts for our sample.

	Total	Employed in 2007			Employed in any moment after the pension until 2007		
		Yes	No	No/yes	Total	Yes	No/yes
TPT	8,179.1	7,164.9	8,512.8	18.8%	7,950.6	8,331.5	4.8%
APD	13,204.5	10,628.1	13,251.3	24.7%	13,367.8	13,165.2	0.98%
OD	20,405.0	17,147.6	20,462.9	19.3%	19,938.6	20,519.1	2.9%

In Figure 4 we have the distribution of the amount for total permanent disability according to their labour situation in 2007. We have that for employed individuals the concentration is higher in the lowest amounts. For employed persons the distribution is smoother showing a greater percentage of people receiving more than 15,000 euros/year.

Figure 4. Distribution of pension amount for non-employed and employed disability pensioners.



Determinants of having a job being a pensioner

In this section, we estimate a *logit* model to obtain the determinants of the compatibility between pension and working.

Before, we have presented a descriptive analysis, looking at the different characteristics related to those persons beneficiaries of a disability pensions and working at the same time. However, many of the considered variables can have crossed effects on the compatibility of being a disability pensioner and a worker. Therefore, we need to separate the effects of the different variables on the probability of being a pensioner and having a job at the same time. There are different statistical tools to do this. We have used one of them, the so called logit model, because the interpretation of the results usually is easier than with other models.

We will estimate two different logit models, one for each variable we want to explain. The first variable we want to explain is being a pensioner *and* a worker simultaneously in 2007. This variable takes a value equal to 1 in such situation and 0 otherwise. The second variable we want to explain is being working in any moment after receiving the pension *versus* having been only a pensioner at any moment. Consequently, it takes a value equal to 1 in such situation and 0 otherwise.

The logit models include variables to explain such events, the so called independent variables. We include variables related to the personal characteristics (sex, age and region), the pension characteristics (level and amount of the pension) and the labour market trajectory until the moment the person was entitled to a pension (age in the moment people become pensioners; number of employment spells previous to the pension entitlement and working experience previous to the pension entitlement in years, and the labour market state³ when the person obtained the entitlement pension). In addition, there are two variables related to the characteristics of the last job before becoming a disability pensioner: the industry of the last job before becoming a pensioner and the qualification level. The qualification level is a rough proxy of skills because in the database there is not accurate information about the educational level of individuals and we use an aggregation of the Social Security contribution groups which are a mix of occupation and educational level required for jobs⁴.

The final result of the estimations consists on the estimated effects of each independent variable (sex, age, region, etc.) on the probability of being a pensioner and a worker in 2007 (or in the second logit model on the probability of being working in any moment after the pension entitlement). Each of these effects isolates the impact of each independent variable on the dependent variable (therefore, crossing effects among variables are excluded).

Tables 3 and 4 present the effects of each independent variable in terms of the odds ratios in order to have an easier interpretation of the results. For instance, as the odds ratio for men is 3.8, we have that the probability of being a pensioner and a worker is almost four times greater for men than for women. The effects of each variable should be understood respect to the reference category. For example, in Table 3 considering age in 2007, the probability of being a disability pensioner and being working in 2007 is 0.35 times lower for those who are between 60 and 64 years old than for those who are under 45.

First, we focus on those variables related to disability pensions.

Total permanent disability is the type of pension which multiplies by 2 (5 in the case of being employed in any moment) the probability of being working with respect to absolute permanent disability and outstanding disability. Then, the disability pension designed to be strictly compatible with working is effectively the most related to such compatibility.

With respect to the amount of the pension, when it increases the probability of being a worker pensioner decreases. Therefore, the role played by work income seems to be a sort of complement respect to a lower disability pension.

³ Of course, a contributory pension is related of having been working before the pension entitlement. Here, we refer to the labour market situation (employed, receiving unemployment benefits, and the rest of non-employment situations) strictly when the individual obtain the entitlement to the disability pension.

⁴ For example, 'High' means highly qualified occupations as engineers, graduates, departmental heads, etc., and 'Low' means semi-skilled labourers and unskilled labourers.

Now we comment the rest of variables.

The probability of receiving a pension and working also decreases as long as age increases (although the probability of have being employed in any moment after the pension until 2007 increases with age). We find the same result for the age at the moment the people is entitled to the pension. Therefore, the incentives to work decrease when people become older.

With respect to the employment trajectory, the probability of being working and receiving a pension is lower for people with more employment spells previous to the pension entitlement and for people with more working experience previous to the pension entitlement. Therefore, people with a lower attachment to the labour market have a higher probability of having simultaneously incomes from pension and employment. In the same way, people with an active participation in the labour market prior to the pension (employment or unemployment vs. inactivity) have a higher probability of being employed. The probability of being pensioner and worker also increases with qualification in the last job (it is 1.5 times higher for people with high qualification).

Respect to the other dependent variable (i.e., working at any moment after the entitlement pension or not), we obtain similar results for the pension related variables, but with a different size. Those entitled with a total permanent disability has a probability of having been working after the pension entitlement almost 5 times higher than those with an outstanding disability, and those with an absolute permanent disability have a probability 1.2 times higher. Considering the amount of the pension, the effect is the same but the differences are not so important for pensions above 10,000 euros. Considering other variables the results are rather similar with the exception of the age in 2007. Now, we have that as age increases, the probability of having been working after the pension entitlement clearly increases. However, this result only shows that when people is older become more probable to have an employment, only because we are considering a longer period.

Estimations for men and women are shown in table 4. There are some relevant differences. For the type of pension the results are similar for both genders, but the effect of total permanent disability is stronger for men. However, the effect of the amount of the pension is clearly different by gender: while for men we obtain the same decreasing pattern when the pension amount increases, for women there is not such pattern. Then, the amount of the pension is only relevant for male disability pensioners, presumably because of a different role of incomes of men and women in the household. However, we can not confirm this interpretation with the information of our database. In the same way, some other variables are relevant for men (following the patterns commented before) but not for women, as the previous labour market situation and the qualification level.

Table 3. Determinants of the compatibility between pension and work

	Dependent variable: Being a disability pensioner and working in 2007 or not			Dependent variable: Employed in any moment after the entitlement pension until 2007 or not		
	O.R.	S.E.		O.R.	S.E.	
Sex (ref: women)	3.799	0.195	***	1.901	0.066	***
Age in 2007:						
45-49	0.935	0.056		1.286	0.064	***
50-54	0.768	0.048	***	1.655	0.083	***
55-59	0.575	0.039	***	1.782	0.094	***
60-64	0.355	0.029	***	2.065	0.120	***
Ref: under 45						
Age at the pension entitlement:						
31-45	0.431	0.030	***	0.393	0.023	***
46-55	0.189	0.017	***	0.114	0.008	***
56 and over	0.076	0.010	***	0.042	0.004	***
Ref: under 31						
Previous situation:						
Employment	1.044	0.046		2.330	0.076	***
Unemployment	1.372	0.117	***	2.617	0.162	***
Ref: non-participation						
Kind of pension:						
APD	0.954	0.232		1.231	0.108	**
TPD	1.978	4.713	***	4.834	0.438	***
Ref: OD						
Qualification level:						
High	1.516	0.190	***	1.374	0.107	***
Medium	1.242	0.064	***	1.146	0.044	***
Ref: Low						
Industry:						
Agriculture	0.550	0.062	***	0.451	0.036	***
Industry	0.930	0.089		0.973	0.066	
Construction	0.807	0.077	**	0.938	0.065	
Retail trade	0.990	0.105		0.976	0.073	
Restaurants	0.879	0.111		1.015	0.090	
Transport	1.180	0.155		1.077	0.102	
Public administration	0.712	0.068	***	0.683	0.046	***
Recreational and leisure activities	1.023	0.260		0.881	0.160	
Other services	0.944	0.108		1.005	0.075	
ref: Business activities						
Number of employment spells:						
6 a-10	1.118	0.061	**	1.129	0.044	***
11 – 20	1.141	0.063	**	1.143	0.046	***
Over 21	1.201	0.070	***	1.186	0.050	***
Ref: under 6						
Working experience (years):						
5 – 10	0.952	0.076		0.935	0.059	
10 – 15	0.960	0.083		0.950	0.064	
15 – 20	1.008	0.091		0.895	0.063	
20 – 25	0.938	0.090		0.908	0.066	
25 – 30	0.909	0.096		0.825	0.065	**
31 – 35	0.932	0.113		0.786	0.069	***
35 and over	0.581	0.102	***	0.949	0.097	
Ref: under 5						

	Dependent variable: Being a disability pensioner and working in 2007 or not			Dependent variable: Employed in any moment after the entitlement pension until 2007 or not		
Amount:						
5000 – 10000	1.001	0.047		1.113	0.045	***
10001 – 15000	0.622	0.042	***	0.826	0.043	***
15001 – 20000	0.387	0.039	***	0.895	0.057	*
20001 – 30000	0.275	0.040	***	0.852	0.062	**
30000 and over	0.293	0.112	***	0.764	0.093	**
Under 5000						
Other pensions	1.377	0.214	**	1.109	0.102	
Minimum complements	0.346	0.062	***	0.627	0.046	***

NOTE: Asterisks indicate significance at, respectively, the 0.01 level (*), the 0.05 level (**) and the 0.01 level (***). Categories without asterisks are not statistically different from zero

Table 4. Determinants of the compatibility between pension and work by sex

	Dependent variable: Being a disability pensioner and working in 2007 or not						Dependent variable: Employed in any moment after the entitlement pension until 2007 or not					
	Women			Men			Women			Men		
	O.R.	S.E.		O.R.	S.E.		O.R.	S.E.		O.R.	S.E.	
Age in 2007:												
45-49	1.118	0.155		0.974	0.074		1.253	0.129	**	1.439	0.095	***
50-54	0.834	0.128		0.799	0.063	***	1.725	0.181	***	1.866	0.126	***
55-59	0.568	0.110	***	0.602	0.052	***	1.919	0.224	***	2.219	0.158	***
60-64	0.291	0.077	***	0.362	0.037	***	2.446	0.329	***	2.725	0.210	***
Age at the pension entitlement:												
31-45	0.483	0.076	***	0.404	0.035	***	0.386	0.046	***	0.392	0.030	***
46-55	0.221	0.048	***	0.174	0.020	***	0.126	0.019	***	0.105	0.010	***
56 and over	0.096	0.034	***	0.064	0.011	***	0.055	0.010	***	0.031	0.004	***
Previous situation:												
Employment	1.081	0.119		1.222	0.072	***	2.771	0.190	***	2.518	0.115	***
Unemployment	1.202	0.255		1.651	0.162	***	2.736	0.358	***	2.837	0.213	***
Kind of pension:												
APD	0.910	0.679		0.854	0.236		1.069	0.211		1.260	0.140	**
TPD	1.589	11.77	***	1.989	5.382	***	2.473	0.511	***	5.787	0.664	***
Qualification level:												
High	0.941	0.312		1.499	0.224	***	0.994	0.152		1.294	0.129	*
Medium	1.365	0.164	*	1.169	0.072	**	1.026	0.079		1.082	0.053	
Ref: low												
Industry:												
Agriculture				1.018	0.364		0.632	0.432		0.571	0.163	**
Industry	0.684	0.129	**	1.015	0.122		0.880	0.108		1.007	0.091	
Construction	0.857	0.265		0.877	0.103		0.812	0.167		0.891	0.081	
Retail trade	0.813	0.163		1.170	0.159		0.849	0.112		1.054	0.109	
Restaurants	0.857	0.180		1.019	0.174		1.279	0.176	*	1.021	0.133	
Transport	3.112	1.210	***	1.278	0.202		1.551	0.446		1.111	0.133	
Public administration	0.719	0.128	*	0.693	0.085	***	0.787	0.088	**	0.639	0.060	***
Recreational and leisure activ.	0.286	0.219		1.591	0.467		0.749	0.262		1.051	0.238	
Other services	1.017	0.188		0.953	0.157		1.300	0.145	**	0.971	0.114	

	Dependent variable: Being a disability pensioner and working in 2007 or not						Dependent variable: Employed in any moment after the entitlement pension until 2007 or not					
Number of employment spells:												
6 - 10	1.215	0.158		1.102	0.081		1.011	0.078		1.068	0.059	
11 - 20	1.352	0.187	**	1.100	0.080		1.058	0.089		1.076	0.059	
over 21	1.450	0.212	**	1.189	0.089	**	1.060	0.097		1.158	0.066	*
Working experience (years):												
5 - 10	1.093	0.199		0.948	0.095		1.070	0.138		0.922	0.080	
10 - 15	0.760	0.150		1.058	0.117		0.952	0.128		0.950	0.090	
15 - 20	0.893	0.188		1.069	0.125		0.952	0.135		0.827	0.081	*
20 - 25	0.751	0.176		0.944	0.116		0.905	0.137		0.771	0.079	**
25 - 30	0.522	0.154	**	0.947	0.128		0.899	0.148		0.684	0.075	***
31 - 35	1.121	0.362		0.796	0.124		1.013	0.194		0.628	0.075	***
35 and over							0.863	0.210		0.805	0.113	
Amount:												
5000 - 10000	1.133	0.126		0.982	0.061		1.100	0.095		1.089	0.066	
10001 - 15000	0.873	0.165		0.592	0.049	***	0.886	0.098		0.721	0.051	***
15001 - 20000	0.527	0.178	*	0.338	0.041	***	0.984	0.138		0.735	0.062	***
20001 - 30000	0.697	0.314		0.266	0.046	***	1.035	0.168		0.695	0.066	***
30000 and over							0.805	0.217		0.683	0.103	**
Other pensions	1.408	0.315		1.442	0.426		1.160	0.142		0.990	0.218	
Minimum complements	0.797	0.286		0.295	0.075	***	0.658	0.094	***	0.536	0.064	***

NOTE: Asterisks indicate significance at, respectively, the 0.01 level (*), the 0.05 level (**) and the 0.01 level (***). Categories without asterisks are not statistically different from zero

Finally, we have also estimated different logit models for each type of disability pension (Table 5). We have not estimated a model for those with an outstanding disability because the sub-sample was small and the results were not statistically reliable.

In the case of absolute permanent disability (first column), the amount of the pension is not statistically different from zero. Therefore, for this type of disability pension, the effect that we found previously in Tables 3 and 4 was presumably related to the type of pension and not with the amount of the pension. Those receiving an absolute permanent disability pension have the same probability of working irrespective of the amount of their pensions. In other words, the amount of the pension does not affect to the incentives to work when the worker is entitled for an absolute permanent disability pension. However, for those with a total permanent disability we find a decreasing probability of working when the pension amount increases. Therefore, the eventual role of 'complement' of work income is linked to total permanent disability, the pension designed to be compatible with work. This effect has a minimum threshold, 10,000 euros.

Considering other variables, we find that different variables affect to the probability of being working for each type of pension. While age decreases the probability of working for total permanent disability, it does not affect for absolute permanent disability. On the other hand, individuals with low qualification have a higher probability of making compatible pension and work in the case of APD. Instead, for TPD, the group with a higher probability of being employed and pensioner is the high qualified one.

Table 5. Determinants of the compatibility between pension and work by kind of pension

HOST COUNTRY REPORT

Employed in 2007	APD			TPD		
	Odds Ratio	Std. Err.	z	Odds Ratio	Std. Err.	z
Sex (ref: women)	2.277	0.459	***	3.935	0.237	***
Age in 2007:						
45-49	0.912	0.208		1.012	0.071	
50-54	0.840	0.206		0.796	0.058	***
55-59	0.899	0.233		0.575	0.047	***
60-64	0.697	0.212		0.345	0.034	***
Age in the pension:						
31-45	0.722	0.162		0.396	0.033	***
46-55	0.311	0.111	***	0.176	0.019	***
56 and over	0.273	0.144	**	0.064	0.010	***
Previous situation:						
Employment	1.562	0.294	**	1.186	0.064	***
Unemployment	2.330	0.676	***	1.476	0.138	***
Qualification level:						
High	1.291	0.241		1.201	0.068	***
Medium	0.873	0.316		1.164	0.130	
Ref: low						
Industry:						
Industry	0.970	0.366		0.906	0.094	
Construction	1.577	0.563		0.778	0.080	**
Retail trade	1.673	0.626		1.007	0.118	
Restaurants	1.480	0.633		0.941	0.131	
Transport	2.529	1.110	**	1.225	0.182	
Public administration	1.043	0.378		0.660	0.069	***
Recreational and leisure activities				1.189	0.326	
Other services	0.792	0.360		1.041	0.133	
ref: act. Empresariales						
Number of employment spells:						
6 a-10	0.896	0.202		1.184	0.080	**
11 - 20	1.293	0.279		1.148	0.077	**
Over 21	1.527	0.356	*	1.240	0.086	***
Working experience (years):						
5 - 10	0.474	0.111	***	1.102	0.105	
10 - 15	0.358	0.100	***	1.096	0.113	
15 - 20	0.380	0.114	***	1.145	0.125	
20 - 25	0.255	0.094	***	1.021	0.117	
25 - 30	0.359	0.145	**	0.957	0.121	
31 - 35	0.104	0.072	***	0.930	0.135	
35 and over	0.153	0.125	**	0.641	0.136	**
Amount:						
5000 - 10000	1.255	0.601		1.017	0.056	
10001 - 15000	1.155	0.558		0.607	0.048	***
15001 - 20000	0.569	0.308		0.362	0.043	***
20001 - 30000	0.634	0.358		0.302	0.055	***
30000 and over	0.196	0.223		0.544	0.320	
Other pensions	2.325	1.255		1.471	0.262	**
Minimum complements	1.146	0.356		0.233	0.066	***

Duration analysis

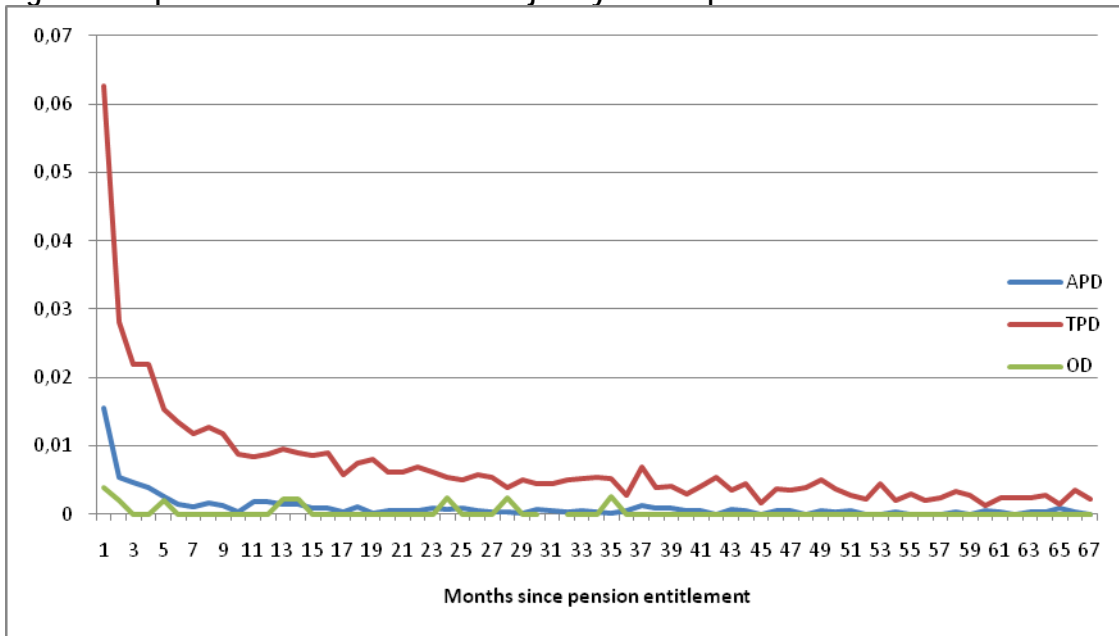
In the case of being employed in any moment after receiving the pension, we have that the length of time is different for every individual. Our data include people who are now pensioners but they were entitled to the pension in different moments. So we are going to apply survival analysis to these data to answer the following question: what factors affect the probability of working after receiving a pension?

For our purpose and in order to reduce heterogeneity, we have restricted our sample to pensioners after 1995 in the Social Security general regime (excluding self-employed and people in the agriculture regime).

Figure 5 shows the empirical hazards into employment by kind of pension. The magnitude of the hazards in each time interval indicates the risk of event occurrence in that interval (the greater the hazards, the greater the risks). We observe that the hazard is much greater for TPD than for the other types, as we previously explained. As can be observed, in the second month of pension the sample hazard into employment is 2.8 percent for people with a TPD while it reaches 0.5 percent for APD and 0.2 percent for OD.

The shape indicates that the proportion of pensioners who go back to employment is high immediately after being entitled to a pension but decreases quickly. By month 10, the hazard never exceeds 1 percent. This negative duration indicates that pensioners are more likely to combine pensions and employment immediately after they are entitled to the pension.

Figure 5: Kaplan-Meier transition rate to a job by kind of pension



We estimate the probability that an individual will survive T periods as pensioner and the probability of combining the pension with a job during the next period, given that the individual has been pensioner (and not a worker) for T periods. For this reason, we consider a discrete-time duration model. Given the shape of the hazard, we have chosen a Weibull model.

The control variables are the same used in the logit analysis. The dependent variable is the duration of the pension spell before working (either completed or censored). It is built from its beginning and ending dates and is measured in months. Every individual with tenure in pension beyond 170 months is considered as censored, as well as individuals who did not work at the end of the observation window.

Given that the type of pension leads to remarkable differences in the participation in the labour market, we have an estimation for each type of pension (except for the outstanding disability because the sample size is too small). Results are shown in table 6. They are similar to those presented before: the incentives to go back to work are related to the pension amount. However, in our results, this variable is not significant in the case of APD and, for the TPD, the hazard rate is lower for people with a higher pension amount.

Nevertheless, other variables seem to be more relevant to explain the re-entry into the labour market. The hazard rate decreases as long as age at the moment people is entitled to pension increases. Therefore, the incentives to work decrease when people become older.

Figure 6 shows the predicted hazard rates changing pension amount and age. We see that the rate is higher at the beginning and it reduces rapidly in all the cases, indicating that the probability of combine pension and work is high at the moment an individual is entitled to the pension. If, at that moment, the pensioner does not find a job, it is very improbable it happens in the future.

Focusing in the differences among hazards for the two variables considered, amount and age, we see that age leads to greater differences among hazards. People over 45 years (especially over 55 years) have a very low hazard rate, showing that it is very unlikely they go back to work. So the disability pension is used as an indirect way to retirement. But, if individuals are younger they will participate in the labour market, they will have a job and they will combine this job with the pension.

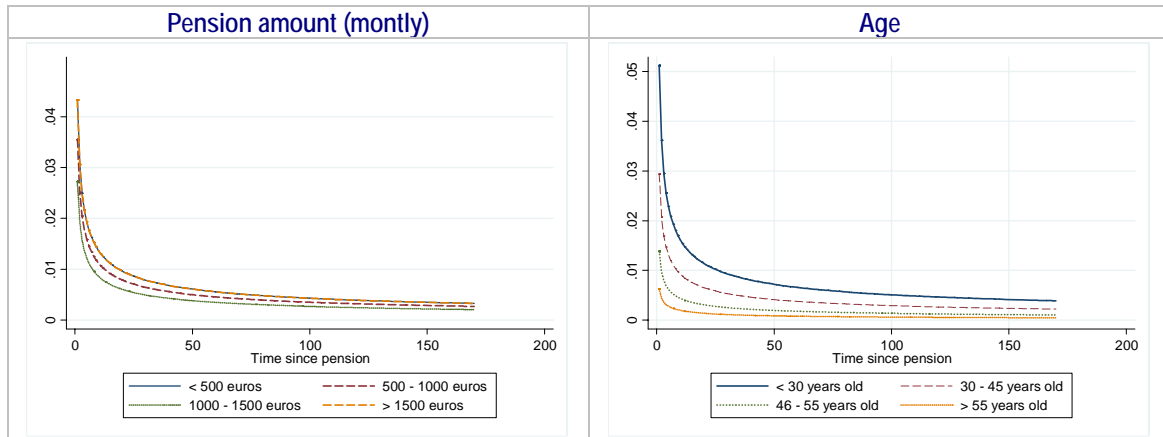
The differences in the hazard rates according to the range of the pension amount are small. People with the lowest and the highest amount have the same hazard, although probably the incentives to participate in the labour market are quite different. The former group works in order to complete their income while the latter one combine pension and work possibly because the cost of opportunity of not doing so is much higher (in terms of reduction of the pension with respect to the previous salary).

The rest of the results do not differ with respect to those obtained in the logit estimations.

Table 6. Determinants of the compatibility between pension and work

	APD			TPD		
	hazard ratio	S.E.		hazard ratio	S.E.	
Sex (ref: women)	0.912	0.066		1.835	0.075	***
Age at the pension entitlement:						
31-45	0.738	0.108	**	0.574	0.034	***
46-55	0.519	0.083	***	0.271	0.018	***
56 and over	0.426	0.077	***	0.123	0.011	***
Ref: under 31						
Previous situation:						
Employment	3.615	0.302	***	1.825	0.068	***
Unemployment	3.645	0.510	***	2.112	0.139	***
Ref: non-participation						
Qualification level:						
High	1.034	0.144		1.361	0.123	***
Medium	0.991	0.087		1.134	0.043	***
Ref: Low						
Industry:						
Agriculture	1.591	0.676		0.415	0.122	***
Industry	1.046	0.141		0.878	0.057	**
Construction	1.244	0.186		0.811	0.053	***
Retail trade	0.985	0.151		0.968	0.072	
Restaurants	1.199	0.214		0.980	0.086	
Transport	1.192	0.230		1.125	0.104	
Public administration	0.856	0.122		0.601	0.042	***
Recreational and leisure activities	0.758	0.299		0.910	0.162	
Other services	1.523	0.199	***	1.021	0.082	
ref: Business activities						
Number of employment spells:						
6 -10	1.135	0.099		1.148	0.056	***
11 – 20	1.310	0.115	***	1.296	0.061	***
Over 21	1.316	0.123	***	1.419	0.068	***
Ref: under 6						
Working experience (years):						
5 – 10	0.676	0.118	**	0.970	0.067	
10 – 15	0.633	0.119	**	1.085	0.084	
15 – 20	0.725	0.138	*	1.076	0.086	
20 – 25	0.747	0.143		1.002	0.081	
25 – 30	0.749	0.149		1.061	0.093	
31 – 35	0.821	0.175		1.152	0.115	
35 and over	1.153	0.265		1.368	0.173	**
Ref: under 5						
Amount (monthly, €):						
500-1000	0.889	0.081		0.820	0.031	***
1000-1500	0.887	0.103		0.629	0.045	***
>1500	0.863	0.117		0.845	0.118	
ref: < 500						
.						
/ln_p	-1.115	0.028		-0.694	0.013	
p	0.328	0.009		0.500	0.006	
1/p	3.050	0.087		2.001	0.025	
.						
Number of observations	8,272			11,827		
Log Likelihood	-5204.306			-14,774.575		
LR chi2(51)	629.78			2430.03		
Prob > chi2	0.0000			0.0000		

Figure 6: Predicted hazard



In table 4 estimations by sex are shown. We restrict our sample to the more frequent kind of pension which is the one with the highest percentage of compatibility between work and pension. Results are quite similar. However we want to remark that the amount of the pension for women is hardly significant as well as the number of employment spells (for men the hazard rates are similar to those in the total sample). In the case of the amount of the pension, only the highest amount has a significant greater hazard rate than the other intervals.

Table 4. Determinants of the compatibility between pension and work by sex. Total Permanent Disability

	Women			Men		
	hazard ratio	S.E.		hazard ratio	S.E.	
Age at the pension entitlement:						
31-45	0.617	0.081	***	0.565	0.039	***
46-55	0.320	0.044	***	0.254	0.021	***
56 and over	0.171	0.029	***	0.107	0.011	***
Ref: under 31						
Previous situation:						
Employment	1.870	0.142	***	1.813	0.079	***
Unemployment	2.385	0.357	***	2.105	0.155	***
Ref: non-participation						
Qualification level:						
High	0.867	0.191		1.490	0.152	***
Medium	1.227	0.100	**	1.093	0.048	**
Ref: Low						
Industry:						
Agriculture	0.449	0.453		0.414	0.128	***
Industry	0.775	0.097	**	0.915	0.074	
Construction	0.697	0.158		0.813	0.065	***
Retail trade	0.754	0.105	**	1.072	0.098	
Restaurants	1.024	0.143		0.900	0.106	
Transport	1.431	0.401		1.132	0.118	
Public administration	0.594	0.077	***	0.592	0.052	***
Recreational and leisure activities	0.490	0.225		1.056	0.207	
Other services	1.010	0.124		0.957	0.109	
ref: Business activities						
Number of employment spells:						
6 -10	0.989	0.091		1.235	0.072	***
11 – 20	1.143	0.108		1.406	0.079	***
Over 21	1.250	0.122	**	1.548	0.089	***
Ref: under 6						
Working experience (years):						
5 – 10	1.044	0.164		0.945	0.074	
10 – 15	1.043	0.170		1.096	0.098	
15 – 20	1.188	0.200		1.032	0.095	
20 – 25	1.096	0.192		0.973	0.091	
25 – 30	1.027	0.198		1.076	0.109	
31 – 35	1.190	0.269		1.181	0.135	
35 and over	0.898	0.298		1.506	0.213	***
Ref: under 5						
Amount (monthly, €):						
500-1000	0.939	0.080		0.791	0.033	***
1000-1500	1.002	0.220		0.597	0.046	***
>1500	2.877	1.336	**	0.790	0.117	
ref: < 500						
.						
/ln_p	-0.820	0.028		-0.652	0.014	
P	0.441	0.012		0.521	0.007	
1/p	2.270	0.064		1.919	0.027	
Number of observations	3,606			8,221		
LR chi2 (50)	478.32			1,802.90		
Log Likelihood	-3,685.610			-11,019.209		
Prob > chi2	0.000			0.000		

Summary and conclusion

In this paper, we have analysed disability pensions from a relatively uncommon perspective. The current literature usually focuses on these pensions as a side way to retirement while we have studied the compatibility between disability pensions and employment. We focus on the Spanish case because of the existence of disability pensions compatible with working with some extent depending on disability's severity.

Using data from the administrative records of the Spanish Social Security, we obtain that 14.8 percent of people who receive a disability pension is working at the same time (24.7 percent in the case of total permanent disability). When comparing employed pensioners and non-employed pensioners, we observe that the first group is younger and mostly men. They are entitled to the pension when they are younger than the second group and they have worked during a shorter period.

The proportion of people who is entitled for a pension according to their entitlement age shows that the majority obtain the pension when they are 55-60 years old in the case of men and 55-64 in the case of women.

The average entitlement age was 38.3 for pensioners who worked in 2007 and 47.2 for those not working on that date. For those pensioners the average age of entry to the first job was 20.1 and 24.4 years respectively. The average number of years of contributions to pension scheme before being entitled was 18.2 for pensioners who worked in 2007 and 22.7 for those not working in that year.

The amount of the pension is lower among the group of those working and, according to the econometric analysis, as this amount increase, the probability of being working decreases. However, this is true for men but not for women. Furthermore, the probability of being employed also depends on other variables related to labour trajectory and age. Younger people and qualified persons have a higher probability of being employed.

Summing up, if as a means for social integration, the aim of policies is to foster the compatibility between pensions and employment, not only the amount of pension is relevant but also some variables related to the previous labour market trajectory.

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