How does marriage situation affect post-retirement depression levels?

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Abstract

The aim of this paper is to assess the effects of marriage situation on post-retirement depression levels. Specifically, the study aims to check if the marriage situation could impact the transition to retirement, the hypothesis being that being married helps overcome issues faced by people going to retirement. To perform our analysis, we use a multinomial response model and more precisely an ordered response model. Since the variable "life satisfaction", which was our first choice of variable, is only present in wave 1 we attempt to proxy for it using the self reported depression level of the respondents. The idea is to keep in our sample only individuals who got retired sometime between the two waves.

Literature on the effect of retirement on welfare is rich: in societies where people tend to live longer, the legal age of retirement gets lower. Dave, Rashad and Spasojevic (2006) explain that enacting policies that prolong the retirement age may be desirable (ceteris paribus) and Szinovacz and Davey (2004) find that depressive symptoms increase for women post-retirement.

Hence if retirement can be a good thing for people, their situation seems also to be important. The contribution of our paper consists in studying one of the situations that might help people to enjoy their after work life, namely their marriage situation.

Data and sample selection

The database used in our study is the National Longitudinal Survey of Youth, which is a Biennial cross national household survey started in 2004/5. There are two waves available, the second one being in 2006/7. Respondents of the survey consist of a representative population sample spanning all income levels in many European countries. We keep observations for all countries that took part during wave 1, in order to retain our sample size in adequate levels.

The variable of interest is the level of depression given by respondents. As explained above, this is our dependent variable that will help us to evaluate the post retirement level of depression. People answered about their perceived level of depression on a scale from 0 to 12, 0 being no depression. We transform this variable to a multinomial variable of 3 cases (no depression change, more depression, less depression) and due to this we use a multinomial ordered logistic regression.

The main independent variable is the **marriage situation** since we want to assess its

impact on wellbeing (assessed by the change in depression post-retirement) for people going to retirement. After dropping all individuals who did not retire between both waves (or did not answer the question), we are left with 738 observations when considering only those working prior retirement and 1600 when also including those reported as housemakers or sick prior to retirement.

The variables we control for are:

- Age: to control for age a variable needed to be calculated for each wave by doing the difference between the date of the interview and the birthday of the people. Only the year and month are given and for people who did not give their month birth we arbitrarily chose the 6th month of the year. Age is then divided into 3 groups.
- Gender
- Health: two types of variables from the database are kept to control for it. These are the variables concerning difficulties in performing house activities and "doctor told you" variables:
  - Difficulties: we kept the difficulties claimed by respondent concerning different situations like walking 100 meters and which directly affect a person's physical condition (for example we chose to drop the difficulty on managing money). As we can see, all these variables directly impact the wellbeing of the respondent. However we did not retain the difficulties that were not linked with health (for instance difficulties of managing money). Then, in order to simplify the model, we preferred to combine all these variables into one that indicates how many difficulties a respondent has. So if this new variable called difficulty is 0 it means that the person does not have any difficulty (and for this particular value, it not only means that he does not specify any of them, but also that he indicated that he did not have any).
  - Concerning the variables that we used from the database and which names start by "doctor told you" the process is approximately the same. In order to control for the health of the people that answered the survey we included those that give indication on different health problems. Similarly as before, we constructed one variable combining all of these and indicating the number of health problems stated above.
- Net-worth: it is the variable retained to control for wealth as we assume it is the most general that gives us an idea of the situation of the respondent. Since we want to include countries from outside the euro zone, we need to convert the numbers using the purchasing power parity and the currency. In order to have an idea of the individual wealth, we want to divide the net-worth taking into account the number of household members according to the method proposed from INSEE (Institute of statistics in France) that is, the first member of the household accounts for one and all others for 0.5. We then divide net-worth in 3 different categories depending on the country-specific distribution of the variable.
- Grandchildren: as shown in the literature, happiness after retirement notably depends on the capacity to maintain a social life. It is easily understandable that grandchildren can provide this and have a straightforward absolut correlation with also having children. Children are also taken into account in our analysis in the same way as grandchildren (with a binary variable of having any or not).
- Other variables: we control for mental health (whether one was admitted to hospital for

mental reasons 12 months prior to any of both waves – dummy variable), retirement being a concern, relief, both or none and a dummy indicating whether the individual had no depression during the first wave (since his condition cannot improve) or not.

Descriptive Statistics Analysis

The following tables give us a quick overview of the situation for 2 different populations and waves:

- Table 1: descriptive statistics on the marriage situation and depression levels in the whole population. It can be thought that being married or in a registered relationship is good for the wellbeing since the level of depression is lower than the average for these two groups (whereas it is higher for all other categories).
- The other tables are focused only on the population of interest: those who got retired. We can see from the table that it concerns 1600 people (which are going to be our sample for our analysis.
- Table 2: we note that the values for depression are typically lower in wave 2 than in wave 1. Since it concerns the people that retired between the 2 waves, it supports the idea that retirement tends to worsen depression. Again we generally find that living with a partner seems to decreases depression.
- Table 3: Shows information on the values of the variables used. The people in our sub-sample are on average 63 years old with a 2.31 average level of depression. However, standard error is quite large and if the distribution shows that many responders answered 0. Furthermore, individuals have on average 2.19 children and 14% of them have grandchildren. In addition, Out of 20 possible difficulties, they reported an average of 1.76 while out of 9 types of doctor related conditions, 1.5 was reported on average. Concerning the net worth, we note that it is pretty volatile (high standard deviation and min and max values are extreme).
- Tables 4 and 5: It is notable that concerning the group working prior retiring there is a larger proportion of men (could be due to the generation concerned having more male workers). We see that for a majority of responders the number of health problems reported did not change (for almost half of them). Almost 40% indicated a decrease in their level of depression whereas only around a third indicated an improvement. Finally, it can be seen that the reason that forced us to drop variables “retirement being a concern” and “having grandchildren” is that very few people reported these.

Estimation results

We run the logit regressions that appear in table 6. As explained in the legend, the first column shows the regression only for people who were working prior getting retired in wave 2 and the second column for all retired individuals. The 2 columns on the left follow the same pattern but only controlling for the marriage situation.

The first comment that can be made is that almost all the results are insignificant. Hence we cannot draw solid conclusions from them. However some observations can be made.

First of all, one result that is significant is that people who reported a depression level

different from zero are more likely to experience a negative change in their level of depression. It is important and can be the origin of the aforementioned insignificance of our results: levels of depression, when deteriorating, are usually due to the fact that the disease is simply getting worse (which might hide other effects).

Secondly, changes in the level of depression depend upon the change in the amount of doctor reported conditions, something that again makes sense since health problems can have a direct effect on depression.

Concerning the marriage situation, non-significance of the results does not lead us to any specific results. Only observation worth to be mentioned is when taking into account the coefficients' signs on marriage situation. Specifically, when comparing people who were working prior to retirement with the whole sample, we observe a small (negative) magnitude on depression's deterioration. Again there is no significance but it can be argued that change in depression tends to be smaller for people who were working before retiring since, work related depression disappears post retirement.

The marginal effects computed are not conclusive either. We cannot conclude in any patterns since the signs change, for instance, when considering individuals that were working prior retirement or when controlling for marriage.

Possible extensions and Robustness checks

Since no real conclusion has been drawn, a robustness check might seem as superfluous. However, in order to check for robustness we need to see if the results obtained from our regressions are robust for different aged people. We perform checks for three different age groups: individuals aged between 68 and 78; non retired and working individuals aged between 45 and 55 and non retired individuals aged between 45 and 55. In all regressions, as one can see in Table 8, we find no significant changes compared to our main regression. Furthermore, initial insignificance of results related to marriage situation does not improve.

In addition, we observe that significance concerning health is also true when including the "difficulties reported" instead of the "doctor" variable. Hence we can conclude that there is definitely a link between health and depression.

Conclusions

As mentioned before, the lack of significance impedes us to draw any robust conclusions. The first difficulty we can point out concerns the choice of our dependent variable. It would have certainly made more sense to use the level of happiness instead of the level of depression since depression is a disease and we do not include (due to unavailability) a measure of life enjoyment. Moreover, due to the construction of the variable, someone who is not depressed cannot show a positive evolution (that is why this is controlled in the regression by a dummy variable for depression). Thus we see that this disease is more likely to evolve for people already depressed (robust). Also we see that depression is linked with health problems. However, concerning retirement, we can only guess that the transition seems more difficult for people that were working prior retirement.

Finally, although we have to conclude that marriage situation cannot be considered to have an effect on individuals' depression after getting retired, we would like to note that

further research should be considered. This we believe is necessary since, as one can see in Table 2, not only is our sample fairly limited, but also observations in all married categories except for married and living together as well as widowed are less than 90, something that surely imposes a negative effect on our results.

*Table 1Marital status and depression level in the **overall population** in wave 1*

Marital Status	Frequency	Percent	Depression (average) *Scale from 0 to 12*
Married and living together with spouse	20,079	70.64	**2.08**
Registered partnership	471	1.66	**1.93**
Married, living separated from spouse	304	1.07	2.89
Never married	1,606	5.65	2.44
Divorced	1,754	6.17	2.52
Widowed	4,029	14.81	3.12
Total	**28,423**	**100**	**2.28**

Table 2 Description of the sample of interest. Note: Dep w1 is the mean of the depression value in wave 1

	Retired from working				Retired from unemployment				Retired from homemaker				Retired from permanently sick				Total (from not retired to retired)			
Marital Status	**Freq**	**%**	**Dep w1**	**Dep w2**	**Freq**	**%**	**Dep w1**	**Dep w2**	**Freq**	**%**	**Dep w1**	**Dep w2**	**Freq**	**%**	**Dep w1**	**Dep w2**	**Freq**	**%**	**Dep w1**	**Dep w2**
Married and living together with spouse	585	79.3%	1.62	1.58	113	72.0%	2.10	1.94	112	67.9%	3.44	**2.92**	337	62.4%	2.48	**2.21**	**1147**	**71.7%**	**2.10**	**1.93**
Registered partnership	11	1.5%	1.45	1.4	2	1.3%	2.00	0.50	3	1.8%	2.67	**0.50**	4	0.7%	0.50	**2.00**	**20**	**1.3%**	**1.50**	**1.33**
Married, living separated from spouse	5	0.7%	1.00	0.2	5	3.2%	1.80	2.20	2	1.2%	1.00	0.50	3	0.6%	4.33	5.00	**15**	**0.9%**	**1.93**	**1.87**
Never married	44	6.0%	1.91	1.55	9	5.7%	4.67	3.00	17	10.3%	2.82	3.24	11	2.0%	4.36	3.27	**81**	**5.1%**	**2.73**	**2.29**
Divorced	48	6.5%	2.35	1.72	15	9.6%	3.00	2.80	18	10.9%	3.11	2.41	7	1.3%	1.80	2.43	**88**	**5.5%**	**2.58**	**2.10**
Widowed	45	6.1%	2.13	1.37	13	8.3%	3.62	3.38	13	7.9%	3.92	4.25	178	33.0%	3.39	3.08	**249**	**15.6%**	**3.20**	**2.84**
Total	**738**	**100%**	**1.77**	**1.56**	**157**	**100%**	**2.45**	**2.19**	**165**	**100%**	**3.33**	**2.94**	**540**	**100%**	**2.80**	**2.53**	**1600**	**100%**	**2.31**	**2.09**

*Table 3 Descriptive statistics **in wave 1** for the group of people that became retired*

Variables	Mean	Stand.dev.	No. of obs	Min	Max
Depression	*2.31*	*2.24*	*1580*	*0*	*12*
Age	*63.35*	*7.38*	*1600*	*40.25*	*96*
Children	*2.19*	*1.51*	*1122*	*0*	*11*
Doctor (nb of problems reported)	*1,50*	*1.39*	*1598*	*0*	*9*
Difficulties (nb of difficulties reported)	*1.76*	*2.81*	*1581*	*0*	*20*
Net worth	*63315.2*	*2.25+06*	*1600*	*-5.6+06*	*3.6+07*

Table 4 Descriptive statistics for individuals who were working prior retirement

	Frequency	st. Dev.	N
Nb of health prob reported by a doctor			
Increase (worse)	26.40%[1]	.4411	731
No change (same)	49.11%	.5002	731
Decrease (better)	24.49%	.4303	731
Level of depression			
Increase (worse)	33.78%		17347
No change (same)	29.50%		17347
Decrease (better)	36.72%		17347
Age group			
Younger than 60	49.59%	.5003	738
Between 60 & 68	47.70%	.4998	738
Older than 68	2.71%	.1625	738
Social class (based on net worth)			
Lower class	17.21%	.4991	738
Middle class	53.34%	.4559	738
Upper class	29.40%	.4928	738

	Frequency	st. Dev.	N
Gender			
Males	58.67%	.4928	738
Females	41.33%		
Marriage situation			
Married and living together with spouse	79.27%	.4057	738
Registered partnership	1.49%	.1213	738
Married, living separated from spouse	0.68%		738
Never married	5.96%	.2369	738
Divorced	6.50%	.2468	738
Widowed	6.10%	.2394	738
Grand children			
Having a grandchildren	1.06%	.1026	377
Concern			
Of retirement	.	.	0
Depression dummy			
	21.74%	.4658	734

[1] 26.4% of the respondents who answered the question reported less health problem in wave 2 than in wave 1.

Table 5 Descriptive statistics for all individuals who retired

	Frequency	st. Dev.	N
Nb of health prob reported by a doctor			
Increase (worse)	28.65%[1]	0.4522	1588
No change (same)	43.60%	0.4960	1588
Decrease (better)	27.70%	0.4477	1588
Level of depression			
Increase (worse)	31.60%	0.4650	1557
No change (same)	28.26%	0.4504	1557
Decrease (better)	40.14%	0.4903	1557
Age group			
Younger than 60	37.50%	0.4842	1600
Between 60 & 68	43.5%	0.4959	1600
Older than 68	19.00%	0.3924	1600
Social class (based on net worth)			
Lower class	26.88%	0.4434	1600
Middle class	50.19%	0.5002	1600
Upper class	22.93%	0.4206	1600

	Frequency	st. Dev.	N
Gender			
Males	38.44%	0.4866	1600
Females	61.56%		
Marriage situation			
Married and living together with spouse	71.69%	0.4507	1600
Registered partnership	1.25%	0.1111	1600
Married, living separated from spouse	0.94%	0.0964	1600
Never married	5.06%	0.2193	1600
Divorced	5.50%	0.2281	1600
Widowed	15.56%	0.3626	1600
Grand children			
Having a grandchildren	7.21%	0.2587	916
Concern			
Of retirement	2	1	27
Depression dummy			
	22.97%	.4208	1580

[1] 28.7% of the respondents who answered the question reported less health problem in wave 2 than in wave 1.

Table 6: Dependent variable change in depression

	[1]	[2]	[3]	[4]
Depression dummy	-1.756495***	-1.993117***		
Doctor said:				
Negative change	-.32225335*	-.50385299*		
No change	-0.14393593	-0.14944581		
Positive change	(omitted)	(omitted)		
Age Group				
60-68	-0.13767678	-0.29278627		
68+	-0.04626377	-.85893129*		
Social Class				
Middle Class	0.12871162	0.17666766		
Upper Class	0.09135982	0.01938962		
Gender Dummy	0.18458727	0.24214081		
Marriage Situation				
Married	-0.4940765	-0.33254776	0.12154636	-0.0933138
Separated	-0.49171487	0.94190138	1.2685302	0.41580462
Never Married	-0.50153527	-0.13471317	0.30033839	0.01471272
Divorced	-0.25062557	0.28209499	0.6884266	0.13792026
Widowed	-0.6776668	0.20298535	0.51913003	-0.0820245
Cutoff points				
constant 1	-1.897660***	-2.1017**	-0.6427346	-0.8412342
constant 2	-0.55165673	-0.49624834	0.64273461	0.33210271
Statistics				
Observations	1545	722	729	1557
chi2	339.05651	229.30062	7.0112715	2.646215
p	1.55E-64	1.25E-41	0.21980338	0.75433151

Marginal Effects

	[1]	[2]	[3]	[4]
Marriage Situation				
Married	0.0199997	0.0821237	-0.0269111	0.0535045
Seperated	-0.0797908	0.0816932	-0.2157898	-0.118244
Never Married	-0.0030881	0.0834855	-0.0643486	0.0209864
Divorced	-0.0282153	0.0396275	-0.1356613	-0.0407414
Widowed	0.017543	0.1166236	-0.1063	-0.0297643

[1]-[2] : All retired individuals

[3]-[4] : Individuals working prior to retirement

Legend for regression:

1 – People that were employed in wave 1 and retired in wave 2
2 – All people that retired (including sick, unemployed…)
3 – Same as 1 but only controlling only for marriage
4 – Same as 2 but only controlling only for marriage

ll	-1555.1921	-693.6275	-791.98514	-1692.0829

legend: * p<0.05; ** p<0.01; *** p<0.001

Tableau 7 Possible extensions

Variable	1	2	3	4	5	6	7	8
							mologit_wor~3	mologit_all_3
depression								
Depdummy	-2.0076292***	-1.763523***	-1.6357574***	-1.566933***	-2.0906259***	-1.842287***	-1.9951797***	-1.763940***
Doctor								
Worse	-.52163784*	-.33015468*	-0.22949	-0.16461	-.36319048	-.33270063*		
Same	-0.15326	-0.14834	0.192852	-0.27573	-.27300181	-.21036616		
Better	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)		
Agegroup								
>60 & <68	-0.28494	-0.12843	-0.07874	0.238084	-.26457411	-.12114586	-.93819441**	-.11914023
>68	-.87819634*	-0.02167	-15.060997***	0.043752	-.79790133*	-.0702318	-.93819441**	-.00201509
Class								
Middle class	0.177405	0.11651	-0.01605	0.049993	0.365451	0.216885	0.181527	0.13115
Upper class	0.038735	0.086068	-0.54196	0.094761	0.249919	0.229558	0.017085	0.081231
Gender								
Male	0.261433	0.186071	0.14198	0.225796	.47956314*	.24543915*	0.224929	0.17255
Marriage								
Being married	-0.41863	-0.52354	-1.02478	-1.1747229*	-0.36942	-.95864703*	-0.35956	-0.43796
living separated	0.846453	-0.54054	13.775809***	-0.1643	0.955088	-0.94482	0.900872	-0.29662
Never married	-0.18694	-0.53647	0.293251	-0.61369	-0.19026	-0.87281	-0.23185	-0.44117
Divorced	0.210911	-0.27894	-0.74836	-0.94653	0.451322	-0.56172	0.186631	-0.22627
Widowed	0.110683	-0.73145	-1.91612	-1.2255369*	0.303968	-1.0823272*	0.189641	-0.59418

Marriage change	-1.05659	-0.51755						
Mental health			-0.40476	-0.07206				
Children					-0.03318	0.135016		
Nb of difficulties								
diff1							-.68084163**	-.74476502***
diff2							-0.23291	-.31590961*
diff3							(omitted)	(omitted)
cut1								
_cons	-2.1967341**	-1.9505112***	-2.5578063*	-2.0987416***	-1.8661813*	-2.1657569***	-2.1986339***	-2.0300801***
cut2								
_cons	-0.58505	-0.60249	-1.11368	-0.91627	-0.27127	-0.83761	-0.58325	-0.66256
Statistics								
N	722	1545	150	379	582	1252	712	1529
chi2	229.7678	3.41E+02	7.78E+02	7.25E+01	212.6335	285.6745	223.4211	345.6394
p	4.30E-41	3.63E-64	5.51E-157	6.78E-10	1.43E-37	1.14E-52	2.05E-40	6.41E-66
ll	-691.838	-1553.69	-141.635	-385.883	-550.834	-1250.01	-683.893	-1530.1

Legend for regression:
1 – Regression controlling for marriage change and only for people who worked prior they retired
2 – Regression controlling for marriage change
3 – Regression controlling for mental health and only for people who worked prior they retired
4 – Regression controlling for mental health
5 – Regression changing Grandchildren by Children (with a binary variable for children as for grandchildren) and only for people who worked prior they retired
6 – Regression changing Grandchildren by Children (with a binary variable for children as for grandchildren)

7 – Regression changing doctor (problems told by a doctor) by difficulties (reported by responders) and only for people who worked prior they retired
8 – Regression changing doctor (problems told by a doctor) by difficulties (reported by responders)

Table 8 Robustness checks

Variable	1	2	3
Depression			
Depdummy	-1.4320607***	-1.5403436***	-1.5184716***
Doctor			
Worse	-.33023028***	-.56941518***	-.51126346***
Same	-0.03357084	-0.14826737	-0.13408429
Better	(omitted)	(omitted)	(omitted)
Agegroup			
<60	(omitted)		
Class			
Middle class	0.135142	0.106872	.17610983*
Upper class	0.13914	0.121722	0.171783
Gender			
Male	0.084831	.19924203**	.17849947**
Marriage			
Being married	-0.44265	0.131065	0.109706
living separated	-0.06892	0.370031	0.048083
Never married	-0.17981	0.049146	0.147665
Divorced	-0.29021	0.338461	0.309009
Widowed	-0.31564	0.125344	0.132846
Agegroup			
>60 & <68		(omitted)	(omitted)
>68			
Marriage change			
cut1			
_cons	-1.3948778***	-1.2108648***	-1.1178012***
cut2			
_cons	-.0813344	.21321083	.23345876
Statistics			
N	4019	2624	3720
chi2	637.21545	510.04569	693.68373
p	1.52e-129	2.31e-102	1.22e-141
ll	-4168.1765	-2675.8231	-3807.8395

Legend:
1 – Check of robustness for people aged from 68 to 78
2 - Check of robustness for people non retired and working from 45 to 55
3 - Check of robustness for people non retired from 45 to 55