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1

Work Capacity and Longer Working Lives in Belgium

Alain Jousten and Mathieu Lefebvre

1.1 Introduction

Previous waves of this project studied the effect of financial incentives created by formal and de facto (early) retirement programs on an individual's decision to retire, the fiscal impact of such behavior, and reforms' impact thereon. Furthermore, the impact of (early) exits on youth employment and the respective roles of health and program rules as determinants of disability program enrollment have been studied (Dellis et al. 2004; Desmet et al. 2007; Jousten et al. 2010; Jousten, Lefebvre, and Perelman 2012, 2016).

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One aspect that most of these papers have essentially bypassed is work-capacity issues. This neglect is all the more striking in a country like Belgium where the public-sphere pension reform debate is to a large degree dominated by such aspects. For example, one often-voiced concern in the debate on prolonging the working life of Belgian workers is that numerous workers do not have the capacity to work longer (even if they wanted or were pushed to) because of physical or mental health and exhaustion problems, or because psychological or material limitations render continued work impossible.

The most extreme incarnation of this concern is the so-called "arduous jobs" discussion that has been raging with particular emphasis since the current coalition government—in power since the middle of 2014—has embarked on a broader pension-reform project targeting longer effective working lives. This is achieved by closing or delaying early retirement options and working toward a convergence between the various public pension schemes for wage earners, civil servants, and the self-employed. While the government strategy's main thrust mirrors recommendations of a report published by an Expert Committee on Pension Reform 2020–2040 (Expert Committee 2014), individual policy measures show differences between the expert committee and the government proposals.

The broader literature provides some evidence on the link between health and work capacity.[1] For example, relying on indicators of self-assessed health, Van Looy et al. (2014) note that subjective health levels are not any different between those who reduced their working time and those who did not. In contrast, Desmette and Vendramin (2014, 79) find that "positive evaluations on 'general health,' 'physical health' (backache, muscular pain in the upper body, muscular pan in the lower body), and 'psychological health' (depression or anxiety, fatigue and insomnia) are at the highest levels for those who think their current job is sustainable." Similarly, Jousten and Lefebvre (2013) estimate a retirement model for Belgium including health as an explanatory variable and find that it plays a statistically significant role in the individual retirement decision.

The literature, however, also cautions that work ability is only one—though very important—step in the process of keeping individuals at work. Schreurs et al. (2011) argue that "good health may be a necessary but not sufficient condition for retaining older workers," and hence "creating and sustaining a healthy workforce by no means guarantees that older employees will continue working until their official retirement age" as workplace, domestic, or other factors may also influence individuals' effective labor market attachment.

The present chapter focuses on the "necessary condition": good work ability as a precondition for higher employment. In our approach, we focus on the outcome indicator "employment rate" (see figures 1.1 and 1.2) and link it

1. See Jousten and Salanauskaite (2015) for a survey of work determinants including motivation, finances, and legislation, as well as domestic, workplace, and work ability factors.

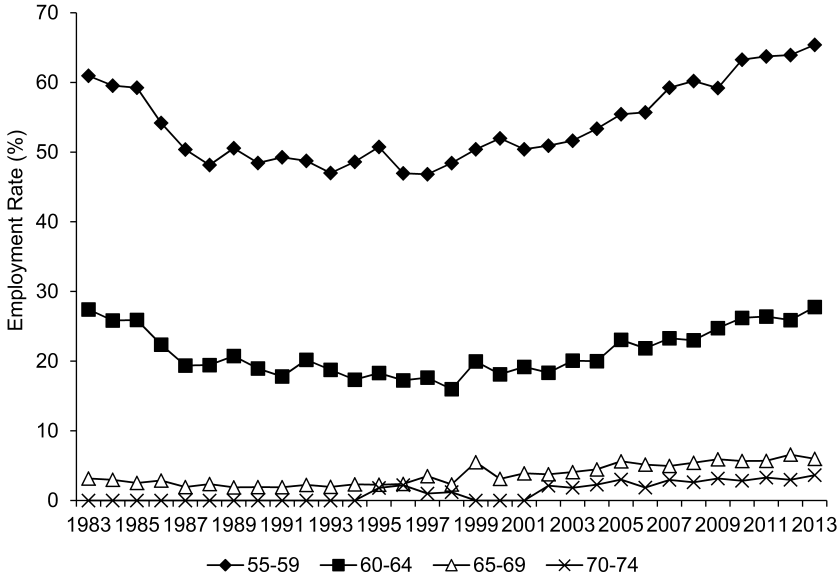

Fig. 1.1 Men's employment rate (ages fifty-five to fifty-nine to seventy to seventy-four)
Source: EU-LFS.

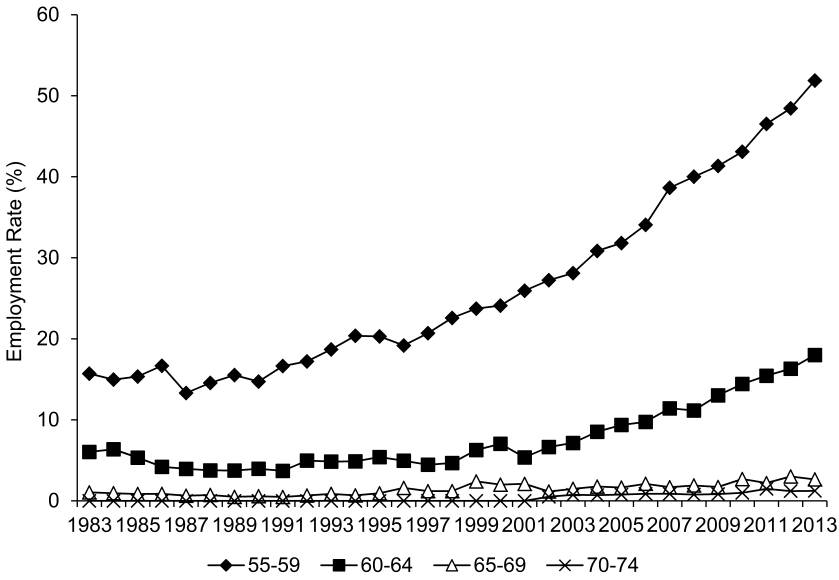

Fig. 1.2 Women's employment rate (ages fifty-five to fifty-nine to seventy to seventy-four)
Source: EU-LFS.

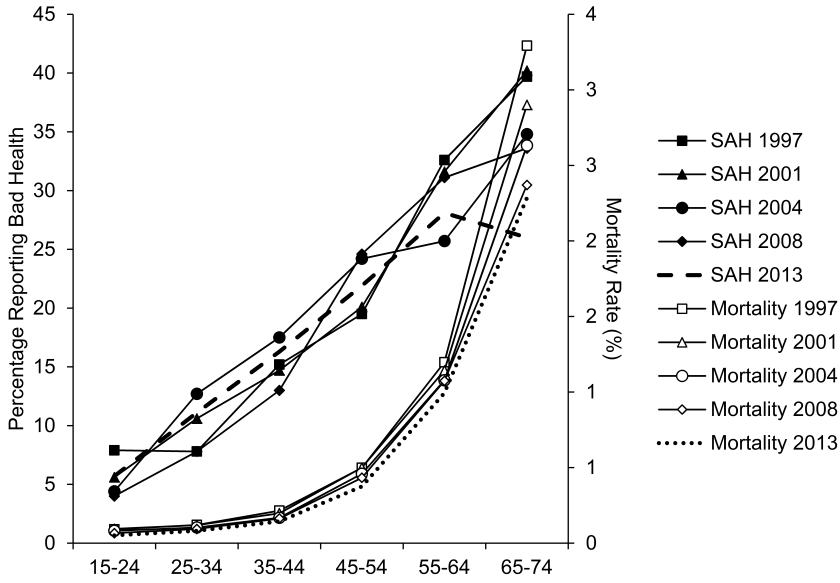

Fig. 1.3 SAH and mortality for men by age group (1997 to 2013)
Source: Human Mortality Database and Belgian Health Survey.

to general indicators of the healthiness of the older population as measured by the mortality and self-assessed health (SAH) of figure 1.3. These figures demonstrate that as we move up across age cohorts at any given point in time, employment rates fall substantially for both sexes—and this despite a generalized upward trend since the mid-1990s. While this decline is part age and part cohort effect, the question remains as to what the impact of health on these trends is.

Section 1.2 proposes an analysis using the Milligan and Wise (2015) methodology, essentially linking mortality and employment across time for those age fifty-five and older. Section 1.3 replaces mortality by a series of health conditions and explores the link between these factors and employment rate at younger ages (fifty to fifty-four) in a first step. In a second step, it proposes a simulation of employment potential at higher ages based on these first-step parameters. Section 1.4 concludes.

1.2 Milligan-Wise Method

Figure 1.4 is a good starting point both for exploring the facts about mortality across time in Belgium, as well as the methodology of Milligan and Wise (2015). The figure plots the instantaneous mortality rate of the Belgian male population as extracted from the Human Mortality Database against the male employment rate in the country as extracted from the EU Labour

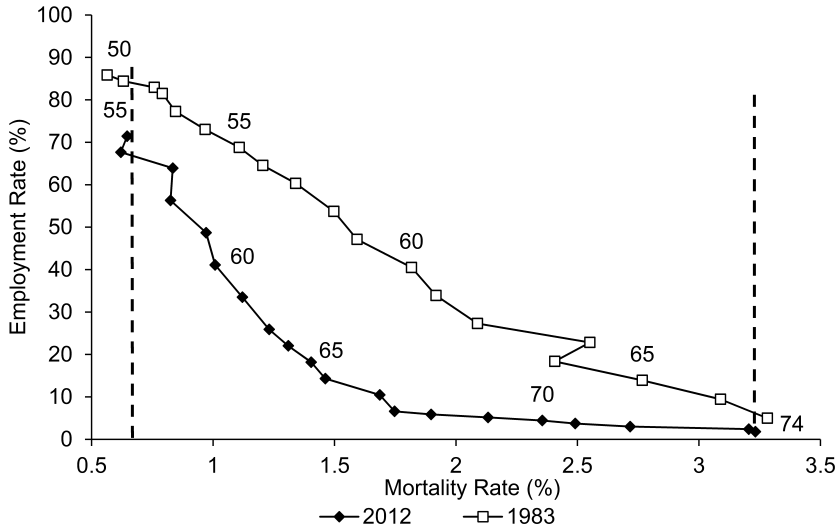

Fig. 1.4 Employment versus mortality rates for men (2012 versus 1983)

Source: Mortality rates from the Human Mortality Database; employment rate from EU-LFS.

Note: Employment rates correspond to linear interpolation as data are only available for five-year age groups.

Force Survey (EU-LFS). We focus on the male population, as Belgian females have experienced a seminal trend toward higher levels of employment and labor force participation over the last decades, hence rendering an isolation of the health from the structural effects hard to implement. The plot of figure 1.4 is done for two years: the recent year, 2012, and a latest possible reference year in the past, 1983.[2] The two outstanding—though unsurprising—facts are: (a) a strong negative relation between mortality and employment rate as age increases, and (b) a seminal trend in mortality rates at equal ages as represented by a leftward shift of the curve across time.

For the purpose of the present section, the focus lies on exploring work capacity for the older population (ages fifty-five to seventy-four), that is, those that are either below the normal retirement age or just a few years above. Leaving from the plot of figure 1.4 corresponding to the year 2012, we draw two vertical dotted lines at two bounds of the age interval of interest: one corresponds to the mortality rate observed at age fifty-five in the year 2012 of approximately 0.6 percent, and the other one to the mortality rate of 3.2 percent at age seventy-four in 2012.

The approach of Milligan and Wise (2015) then explores employment rates at equal mortality rates across time, rather than at equal ages. For example, the mortality rate of 0.6 percent as observed for a fifty-five-year-old

2. No EU-LFS data available before that date.

in 2012 corresponds to an employment level of 71 percent, while in 1983 the same mortality rate was observed for a fifty-year-old with a corresponding employment rate of 89 percent. Thus, if men had the same employment rate as their equal-mortality peers in 1983, this would lead to an 18 percentage points larger employment rate in 2012. Expressed differently, 18 percent of men age fifty-five could have worked one more year, corresponding to an average gap of 0.18 years of work for that specific age group.[3]

Similar calculations were done for all ages in the relevant range of fifty-five to seventy-four in 2012 and the results are reported in table 1.1. They indicate that if employment rates at equal mortality would have stayed constant, then the sum of the age-specific average gains of working years would add up to an additional employment capacity for the male population under study of 4.3 "years of work." This number is derived as the simple arithmetic sum of average year-of-work gains for each age cohort.

To understand the meaning and significance of this result of an extra 4.8 potential "years of work," three important elements need to be considered. First of all, the equivalence between extra employment potential (e.g., the 18 percentage points for a fifty-five-year-old in 2012) and "years of work" implicitly assumes that these extra workers would work the same hours/days/months than those that actually work. If this were to be different—either because those that currently work or those that could join work significantly less or more than the others—the equivalence would no longer hold.

Second, the total gain in years of work is a theoretical construct and has to be understood as such. For example, as the above number of 4.8 is the simple sum of potential years of work gains by age in the relevant range from fifty-five to seventy-four, it ignores any size and compositional differences between the various age cohorts. Also, and more substantially, the number is hard to interpret in a meaningful way unless one compares it to the theoretical maximum and/or currently observed years of work. As the maximum work potential by age is 100 percent (corresponding to an average year of work for that age group of 1), the total maximum years of work for the entire fifty-five to seventy-four cohort is twenty years. Expressed differently, the extra potential work capacity represents approximately 25 percent of total employment capacity, and is slightly less than the currently observed years of work of 5.1 that one can derive from the age-specific employment rates using the same methodology. In sum, results controlling for mortality improvements indicate that there is unused work capacity that could be activated to achieve almost a doubling of current levels of employment.

Third, the structure of employment and mortality rates of the chosen reference year has a strong impact on the outcome of the simulation. For

3. Notice that results would be substantially different when merely comparing employment rates for the same age group across time but ignoring mortality improvements: for fifty-five-year-olds, the employment rate actually increased from 1983 to 2012 from 69 percent to 71 percent, with mortality, however, strongly decreasing from 1.1 percent to 0.6 percent.

Table 1.1 **Additional employment capacity in 2012 using the 1983 employment-mortality relationship**

Age	Mortality rate in 2012 (%)	Employment rate in 2012 (%)	Employment rate in 1983 at same mortality rate (%)	Additional employment capacity (%)
55	0.65	71.4	84.2	12.8
56	0.62	67.7	84.6	17.0
57	0.83	63.9	78.2	14.3
58	0.82	56.3	78.9	22.6
59	0.97	48.7	72.9	24.2
60	1.01	41.1	71.8	30.7
61	1.12	33.5	68.2	34.7
62	1.23	25.9	63.7	37.8
63	1.31	22.0	61.3	39.2
64	1.40	18.2	57.6	39.5
65	1.46	14.3	55.2	40.9
66	1.69	10.5	44.4	33.9
67	1.75	6.6	42.6	36.0
68	1.90	5.9	35.3	29.4
69	2.13	5.2	26.9	21.7
70	2.36	4.4	24.7	20.3
71	2.49	3.7	17.3	13.6
72	2.72	3.0	14.5	11.5
73	3.21	2.4	6.8	4.4
74	3.23	1.8	6.1	4.3
Total years		5.1		4.8

Source: Authors' calculations using Human Mortality Database and EU-LFS.

example, no fundamental mechanism ensures a systematic leftward shift of the employment-mortality relation when moving across time. Furthermore, even a lack of a visible leftward shift does not mean that there was no change—in fact, situations may arise where negative extra employment capacity is derived, that is, where workers work more in 2012 than in the reference year considered, be it for a specific age or for the whole fifty-five to seventy-four cohort.

Figure 1.5 illustrates this point. It provides the same information as figure 1.4, but this time for the different baseline year of 1997—chosen because it corresponds to the year where the employment rate for the age cohort considered was historically at a low point before increasing again since then. Even though the curve barely moved in the employment-mortality rate space, there is a shift of the corresponding points for any given age up "along the curve" toward the northwest. Expressed differently, at any given age the mortality rate in 2012 is lower than in 1997, and the corresponding employment rate higher.

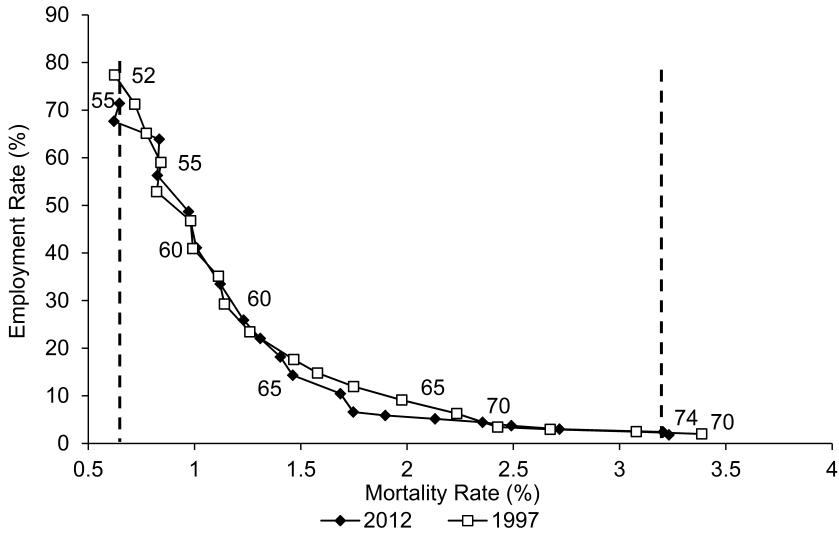

Fig. 1.5 Employment versus mortality rates (2012 versus 1997)

Source: Mortality rates from Human Mortality Database; employment rate from EU-LFS.

Note: Employment rates correspond to linear interpolation as data are only available for five-year age groups.

Figure 1.6 summarizes the findings in terms of extra years of work for the entire fifty-five to seventy-four age cohort for all possible reference years from 1983 to 2011. The graph shows that the additional employment capacity is close to zero when referencing across the last ten years, given increases in employment and decreases in mortality essentially canceling each other out. The sharpest changes could be derived if we take as reference the years farthest in the past, where both factors compound.

1.3 Cutler, Meara, and Richards-Shubik Method

The second method we employ for exploring the potential for additional employment of the older population age fifty-five to seventy-four is the method pioneered by Cutler, Meara, and Richards-Shubik (2012). The basic idea of this approach is to estimate a labor force participation model at a lower age (e.g., those age fifty to fifty-four) that includes demographic, health, and other socioeconomic variables as explanatory variables. The coefficients thus obtained are then applied to the realizations of these very same variables for the older cohort fifty-five to seventy-four to "predict" their labor force participation, in this way controlling for the effect of health or other controlled-for differences between older and younger cohorts.

Our technical approach slightly deviates from Cutler, Meara, and

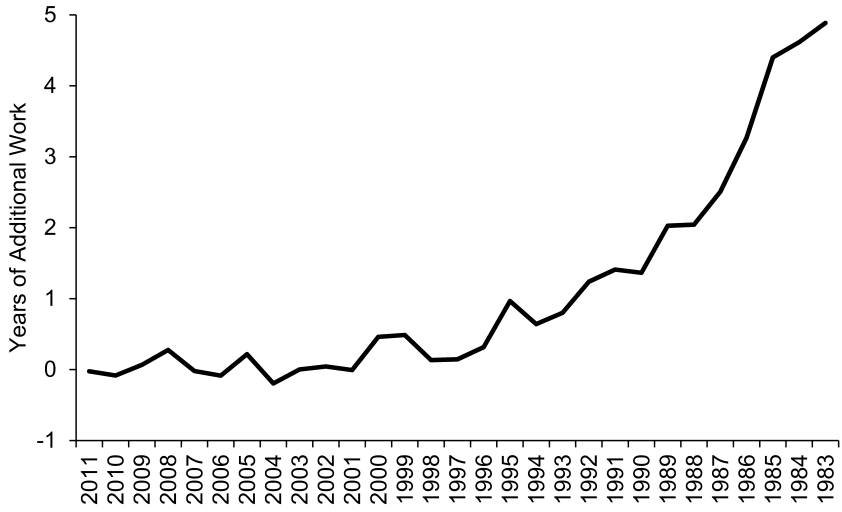

Fig. 1.6 Estimated additional employment capacity in 2012 by reference year
Note: Authors' calculations using Human Mortality Database and EU-LFS.

Richards-Shubik (2012) in that we focus on employment as the key dependent variable instead of labor force participation. The slightly different angle can be rationalized by the fact that in countries like Belgium, where early retirement by means of unemployment benefits is prevalent (be it technically as an early retiree or an unemployed), employment likely is the better outcome indicator.

We use (and pool) data from the Survey on Health, Ageing and Retirement in Europe (SHARE), waves 1, 2, 4, and 5, collected between 2004 and 2013. The survey is a cross-national panel database of micro data on health, socioeconomic status, and social and family networks of European individuals age fifty and older conducted since 2004–05. It covers a broad range of variables of special interest for this study, such as objective information of health, self-assessed health, and occupational status.

Our empirical approach is to estimate (ordinary least squares [OLS] regression) the employment model for the "young" age group (fifty to fifty-four) of men and women separately, and then apply its predictions to the older cohorts (fifty-five to seventy-four). We have a sample of 1,226 male and 1,558 female observations between age fifty and fifty-four that we rely upon for the regressions, and apply the simulations to almost 9,000 observations at older ages. Summary statistics of the survey population are provided in tables 1.2 and 1.3 for the various five-year age cohorts and by sex.

In the regressions reported in table 1.4, we use a single health measure: the PVW health index, as introduced and defined in Poterba, Venti, and

Table 1.2 **Summary statistics SHARE waves 1, 2, 4, and 5 (men)**

	Age group				
	50–54	55–59	60–64	65–69	70–74
In labor force	0.872	0.666	0.265	0.033	0.007
Subjective health					
Excellent	0.112	0.101	0.105	0.090	0.082
Very good	0.303	0.246	0.233	0.232	0.199
Good	0.399	0.430	0.428	0.439	0.433
Fair	0.150	0.171	0.188	0.192	0.223
Poor	0.036	0.052	0.045	0.047	0.062
Objective health					
ADL any	0.063	0.092	0.091	0.117	0.130
IADL any	0.071	0.096	0.102	0.108	0.160
One physical limit	0.130	0.165	0.177	0.184	0.184
More than one physical limit	0.153	0.200	0.212	0.235	0.300
Heart disease	0.065	0.078	0.100	0.158	0.186
Lung disease	0.036	0.046	0.062	0.078	0.094
Stroke	0.015	0.021	0.035	0.035	0.036
Cancer	0.018	0.038	0.050	0.057	0.085
Hypertension	0.250	0.276	0.333	0.329	0.362
Arthritis	0.089	0.123	0.130	0.165	0.176
Diabetes	0.077	0.077	0.112	0.114	0.127
Back problems	0.469	0.497	0.478	0.428	0.419
Depression	2.104	1.994	1.865	1.831	1.975
Psychological disorder	0.053	0.054	0.060	0.039	0.041
Smoking currently	0.304	0.264	0.198	0.155	0.122
Smoking formerly	0.632	0.716	0.727	0.699	0.724
Underweight	0.009	0.003	0.003	0.002	0.007
Overweight	0.423	0.317	0.333	0.342	0.337
Obese	0.174	0.167	0.157	0.173	0.127
Education					
Primary education	0.076	0.100	0.094	0.135	0.164
Secondary education	0.487	0.327	0.267	0.251	0.257
Tertiary education	0.437	0.573	0.639	0.613	0.579
Marital status					
Married	0.687	0.749	0.742	0.770	0.777
Scheme					
Wage earners	0.759	0.741	0.771	0.783	0.808
Self-employed	0.095	0.089	0.101	0.102	0.097
Civil servants	0.146	0.171	0.129	0.119	0.095
Skill					
Low skill	0.074	0.038	0.033	0.032	0.022
Medium skill	0.268	0.161	0.137	0.125	0.087
High skill	0.162	0.093	0.085	0.085	0.074
No. obs.	*1,226*	*1,442*	*1,282*	*1,049*	*795*

Source: Authors' calculations using SHARE data.

Table 1.3 **Summary statistics SHARE waves 1, 2, 4, and 5 (women)**

	Age group				
	50–54	55–59	60–64	65–69	70–74
In labor force	0.746	0.564	0.242	0.022	0.006
Subjective health					
Excellent	0.134	0.084	0.078	0.062	0.035
Very good	0.258	0.249	0.238	0.186	0.167
Good	0.394	0.449	0.425	0.474	0.434
Fair	0.158	0.166	0.204	0.230	0.286
Poor	0.055	0.052	0.055	0.048	0.078
Objective health					
ADL any	0.069	0.085	0.113	0.113	0.207
IADL any	0.128	0.141	0.172	0.162	0.249
One physical limit	0.163	0.170	0.194	0.176	0.171
More than one physical limit	0.247	0.315	0.349	0.406	0.511
Heart disease	0.032	0.052	0.064	0.083	0.127
Lung disease	0.044	0.042	0.057	0.064	0.055
Stroke	0.018	0.018	0.017	0.028	0.042
Cancer	0.043	0.050	0.052	0.074	0.068
Hypertension	0.229	0.268	0.330	0.394	0.439
Arthritis	0.170	0.177	0.229	0.251	0.313
Diabetes	0.045	0.077	0.090	0.115	0.122
Back problems	0.524	0.531	0.551	0.548	0.596
Depression	2.923	2.866	2.614	2.762	2.887
Psychological disorder	0.109	0.106	0.109	0.082	0.089
Smoking currently	0.247	0.210	0.142	0.085	0.077
Smoking formerly	0.476	0.529	0.515	0.428	0.391
Underweight	0.023	0.023	0.013	0.013	0.016
Overweight	0.267	0.240	0.238	0.291	0.279
Obese	0.142	0.139	0.152	0.142	0.149
Education					
Primary education	0.080	0.082	0.121	0.153	0.174
Secondary education	0.441	0.336	0.263	0.265	0.276
Tertiary education	0.478	0.582	0.615	0.582	0.550
Marital status					
Married	0.688	0.692	0.653	0.639	0.583
Scheme					
Wage earners	0.786	0.802	0.825	0.853	0.887
Self-employed	0.062	0.061	0.064	0.061	0.059
Civil servants	0.153	0.137	0.111	0.086	0.055
Skill					
Low skill	0.068	0.051	0.038	0.026	0.038
Medium skill	0.306	0.182	0.131	0.122	0.094
High skill	0.110	0.056	0.061	0.039	0.035
No. obs.	*1,558*	*1,565*	*1,325*	*1,118*	*962*

Source: Authors' calculations using SHARE data.

Table 1.4 **Employment regressions, PVW health index (age group fifty to fifty-four)**

	Men		Women	
Variable	Coefficient	Std. error	Coefficient	Std. error
PVW index	0.004***	0.000	0.004***	0.000
Education				
Primary	Ref.	Ref.	Ref.	Ref.
Secondary	0.077*	0.041	0.099**	0.044
Tertiary	0.096**	0.043	0.186***	0.045
Marital status				
Married	0.112***	0.022	–0.063***	0.024
Scheme				
Salaried	Ref.	Ref.	Ref.	Ref.
Self-employed	0.018	0.035	0.113**	0.047
Civil servant	0.095***	0.030	0.179***	0.032
Skill				
Medium skill	Ref.	Ref.	Ref.	Ref.
Low skill	–0.211***	0.041	0.027	0.046
High skill	0.102***	0.030	0.092**	0.038
Constant	0.377***	0.045	0.306***	0.047
No. obs.	*1,226*		*1,558*	

Note: OLS regression based on SHARE data waves 1, 2, 4, and 5.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Wise (2013). The idea behind the PVW is simple: apply the principal components technique to the twenty-four objective and subjective health measures reported in tables 1.2 and 1.3. These include self-assessed health and various health conditions, as well as the prevalence of physical limitations, and so forth. In a second step, use the first principal component to predict a health score of the individual. Finally, the individual's score is positioned in a given percentile of the overall population used in the estimation. The score of an individual thus generally varies for across-survey waves because the health outcomes and perceptions likely vary across time. Poterba, Venti, and Wise (2013) show that the indicator traces mortality trends rather well at the individual level.

The results of table 1.4 suggest that the PVW index plays a substantial and positive role; that is, a better health score leads to more employment. Marital status plays a substantial role for men and women, though in the opposite direction—likely the result of the primary versus secondary earner status. The higher educated, as well as civil servants, are more likely to be employed for both sexes, while the required skill level for a job only seems to play significantly differently for men and women in high-qualifying jobs,

Table 1.5 Simulations of work capacity (PVW health index)

Age group	No. obs.	Actual % working	Predicted % working	Additional work capacity (%)
		Men		
55–59	*1,442*	58.5	80.5	22.0
60–64	*1,282*	20.9	79.7	58.8
65–69	*1,049*	3.0	79.2	76.2
70–74	*795*	0.7	77.5	76.8
		Women		
55–59	*1,565*	45.6	65.9	20.3
60–64	*1,325*	16.3	64.7	48.4
65–69	*1,118*	1.8	62.5	60.7
70–74	*962*	0.6	58.8	58.2

Note: Simulations based on estimates of table 1.4.

whereas a significant difference can only be observed for their male low-educated counterparts.[4]

Table 1.5 uses the estimates of table 1.4 and applies them to the older cohorts to predict work capacity based on the exogenous variables of the regressions. The table indicates that when controlling for health, work capacity clearly decreases with age, but in a rather unspectacular manner. Predicted work capacity at age seventy to seventy-four is simulated to be around 77 percent for men and 58 percent for women. These numbers are orders of magnitude larger than the ones corresponding to the actual observed employment rate in the country.[5] Figures 1.7A and 1.7B display the same information in a more visual manner, essentially showing the large potential for extra employment that one would predict using this method. To compare these results to the ones from table 1.1, we again apply a simple "synthetic" indicator of gains in years of work derived by adding up the additional work capacity across the entire age range of fifty-five to seventy-four. We obtain indicators of 11.6 and 9.3 years of extra work for men and women, respectively, hinting at a much stronger projected potential for this forward-looking method rather than the "backward-looking" Milligan-Wise methodology.

Given the generally large differences in employment outcomes observed in Belgium, we also applied the same approach by splitting the population

4. The appendix table 1A.1 provides the regression results where we replace the synthetic PVW index by the explicit battery of subjective and objective health (and physical limitation) indicators. The results are overall broadly similar, though individual parameter estimates for some of the health conditions may be influenced by underlying issues of covariation. Robustness checks excluding the scheme dummies further confirmed the results and are available upon request from the authors.

5. Appendix table 1A.2 provides simulation results when the initial estimation is obtained for the full set of health and limitation variables. The results are similar.

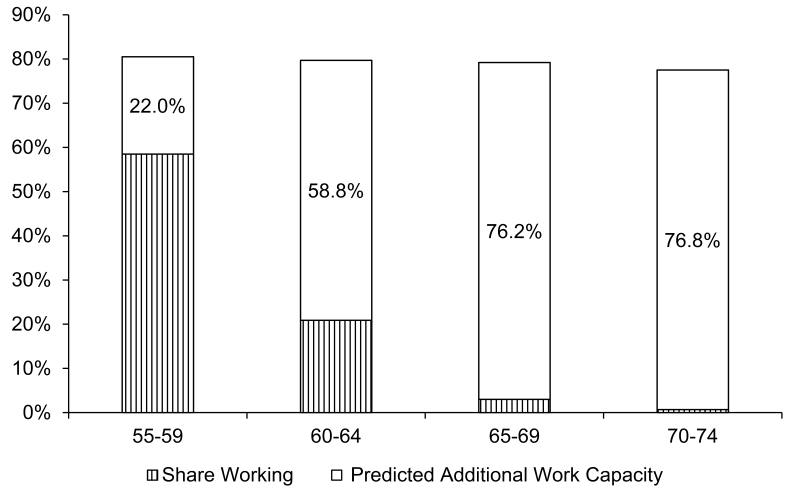

Fig. 1.7A Share of SHARE men working and additional work capacity by age (PVW health index)

Note: Simulations based on estimates of table 1.4.

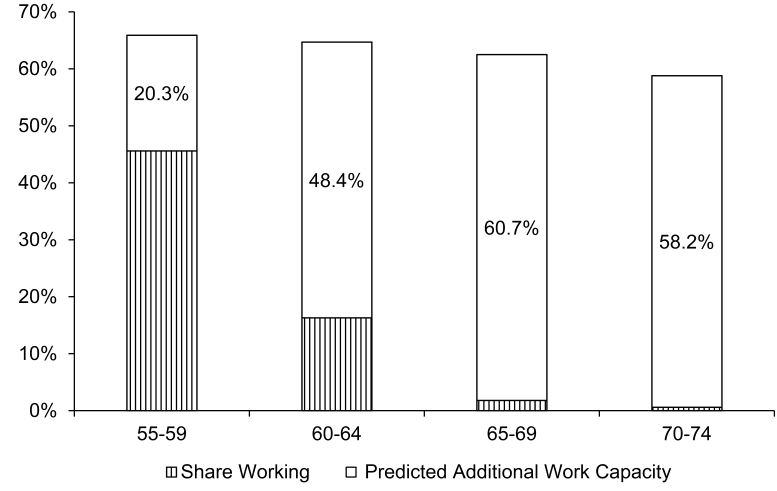

Fig. 1.7B Share of SHARE women working and additional work capacity by age (PVW health index)

Note: Simulations based on estimates of table 1.4.

along the education dimension.[6] Results of the regressions are reported in table 1.6. They reveal some interesting differences with those presented in table 1.5. First, the positive and significant (surprising) coefficient for male civil servants disappears. While table 1.5 might have been interpreted that

6. Similar splits can be performed by scheme or skill level.

Table 1.6 **Employment regressions by education—PVW health index (age group fifty to fifty-four)**

	Men						Women					
	Primary		Secondary		Tertiary		Primary		Secondary		Tertiary	
Variable	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error
PVW index	0.004**	0.002	0.005***	0.001	0.003***	0.001	0.002	0.002	0.005***	0.001	0.004***	0.001
Marital status												
Married	0.134	0.108	0.136***	0.034	0.083***	0.030	0.166*	0.098	–0.132***	0.039	–0.037	0.032
Scheme												
Salaried												
Self-employed	0.218	0.256	0.032	0.057	–0.004	0.043	–0.044	0.351	0.083	0.079	0.132**	0.057
Civil servant	0.552	0.487	0.058	0.047	0.113***	0.036	0.649**	0.300	0.243***	0.059	0.144***	0.037
Skill												
Medium skill												
Low skill	–0.176	0.116	–0.219***	0.053	–0.232**	0.107	0.174	0.109	–0.016	0.058	–0.033	0.168
High skill	–0.013	0.290	0.124**	0.062	0.102***	0.031	–0.009	0.260	0.321***	0.107	0.062	0.038
Constant	0.359***	0.119	0.402***	0.044	0.541***	0.044	0.212**	0.099	0.412***	0.048	0.500***	0.043
No. obs.	93		596		537		123		688		747	

Note: OLS regression based on SHARE data waves 1, 2, 4, and 5.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Table 1.7 **Simulations of work capacity by education group and sex (PVW health index)**

	Men			Women		
Education	Actual % working	Predicted % working	Additional work capacity (%)	Actual % working	Predicted % working	Additional work capacity (%)
			Age 55–59			
Primary	36.9	64.5	27.6	17.8	43.4	25.6
Secondary	55.4	77.9	22.5	37.3	59.2	21.9
Tertiary	63.9	84.9	21.0	54.3	72.7	18.4
			Age 60–64			
Primary	9.8	68.8	59.0	8.0	43.3	35.3
Secondary	19.1	76.8	57.7	11.1	61.2	50.1
Tertiary	23.2	83.1	59.9	20.1	71.2	51.1
			Age 65–69			
Primary	0.9	67.8	66.9	0.0	41.3	41.3
Secondary	1.1	78.5	77.4	2.0	59.8	57.8
Tertiary	4.3	82.6	78.3	2.1	69.3	67.2
			Age 70–74			
Primary	0.6	69.9	69.3	0.0	39.7	39.7
Secondary	0.4	78.7	78.3	0.0	56.5	56.5
Tertiary	1.1	80.8	79.7	1.1	65.7	64.6

Note: Simulations based on estimates of table 1.6.

civil servants' behavior actually differs, be it because of the completely different social protection environment than their salaried counterparts or for some other reason, table 1.6 indicates that this specific finding was more likely the result of interactions between the different explanatory variables education, scheme, and skill.[7]

Health, by means of the PVW index, has no significant effect for low-educated people, a distinguishing feature as compared to their better-educated counterparts. Different interpretations are again possible, two of which are the following: (a) low-educated people might have less flexibility in determining their retirement from the labor force; and (b) the health indicators contained in the PVW index (or the full set of health indicators of appendix tables 1A.1 and 1A.2) do not necessarily contain employment-determining conditions, particularly for workers with lower education who are already less likely to work to start with.

Table 1.7, as well as the accompanying figures 1.8A and 1.8B show the

7. The similarly surprising lack of a distinctly positive effect of self-employment subsists when running regressions by education. Given that the self-employed are excluded from many early exit routes and given that they have a substantially higher effective retirement age, one would expect the contrary. However, one has to keep in mind that the regression is done on a relatively young cohort age fifty to fifty-four, and that it is well before the main early retirement options of wage earners open up during the survey period.

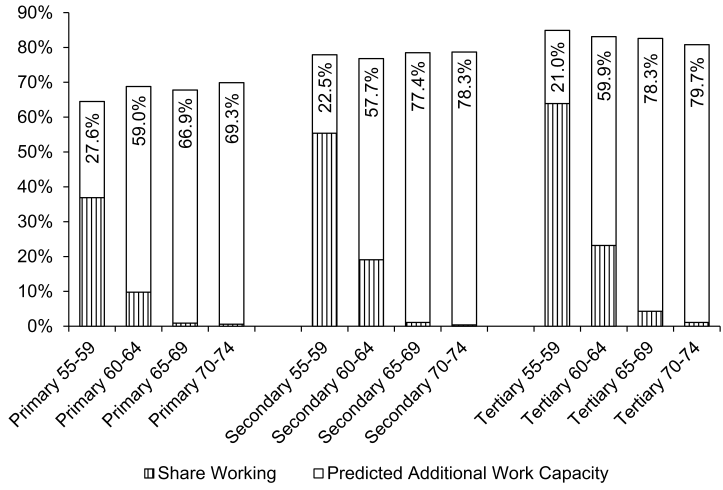

Fig. 1.8A Share of SHARE men working and additional work capacity by age and education (PVW health index)

Note: Simulations based on estimates of table 1.6.

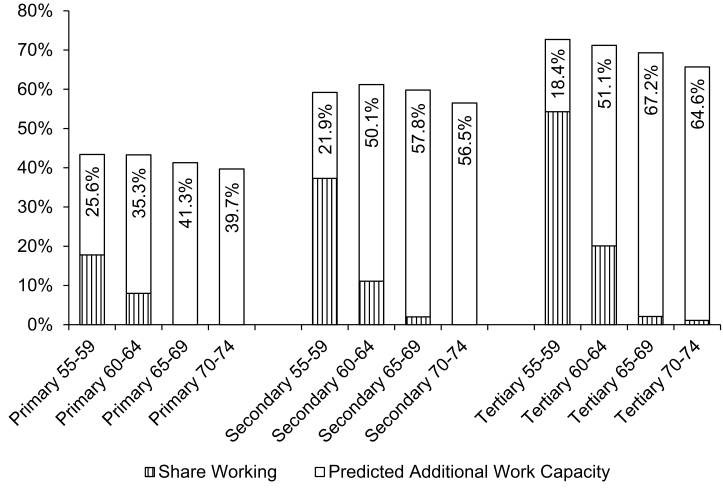

Fig. 1.8B Share of SHARE women working and additional work capacity by age and education (PVW health index)

Note: Simulations based on estimates of table 1.6.

results of simulations based on the OLS coefficients by education of table 1.6. It reveals a picture broadly consistent with the pooled simulation results of table 1.5—namely, one of substantial additional work capacity in the population. However, it also allows extra insights beyond the pooled approach. First, it shows that the share of the population currently working at the age of fifty-five to fifty-nine has a strong education gradient—with an

employment rate close to 75 percent higher for men with tertiary education than those with primary education, and a whopping 200 percent higher for women of the same age group. These findings are in line with those of Aliaj et al. (2016), who show that it is less educated Belgian females that stand out as having an unusually low employment rate, both when comparing within the country and with the neighboring countries of France, Germany, and the Netherlands. Second, as of age sixty to sixty-four, these employment rates drop dramatically for all education groups for both sexes. Almost insignificant levels are attained as of age sixty-five, where employment is more anecdotal than systematic—if only because of the strong focus of numerous social protection programs on sixty-five as a pivotal age.[8]

Though the results indicate that predicted work capacity is substantially lower for those with primary education only at all ages considered, their additional work capacity is actually the highest of all education levels at age fifty-five to fifty-nine, indicating large employment potential when considering the health, education, scheme, and skill characteristics as in our analysis.

Similar exercises can be performed by splitting the population along the "scheme" dimension, rather than education.[9] Tables 1.8 and 1.9 summarize the results of these regressions, as well as the corresponding simulated effects. They show substantial differences between the three main schemes. Table 1.9 indicates that the self-employed have a much higher actual employment level than both wage earners and civil servants, for women and men alike. Also, the simulations reveal that the age gradient of extra employment capacity is steepest for self-employed women and men. In terms of the prediction of people working, civil servants stand out as the most able to work when controlling for the health and sociodemographic variables of table 1.8. Expressed differently, while their level of actual employment is the lowest of all three schemes, their additional employment potential is by far the largest, and this for all but one of the age-sex groups considered.

All these results have to be read with a sufficient caution, keeping in mind the fact that this is only a partial analysis of health and socioeconomic determinants on an individual's ability to work. Clearly, it would be highly premature to claim that such higher employment ability should immediately

8. While retirement at a maximum age sixty-five is by and large history, workers continue to face discontinuities at sixty-five. For example, they lose their layoff protection and also continue to be rolled over from other social protection programs into the pension system at this very age.

9. We deterministically allocate people to the three schemes based on a decision tree reflecting the Belgian social security environment. For those in employment in SHARE waves 1, 2, 4, and 5, we directly observe the scheme they belong to. For those who have worked in the past, the survey provides the same information. For example, a retired civil servant would thus be classified as belonging to the civil servant scheme. All individuals where no such employment information is available are classified into the wage-earner scheme–which corresponds to the effective default option in the real world. We validate our classification using SHARELIFE. The data show that 75 percent of individuals declare a pure career in one of the three systems, with the residual dominated by people with partial wage-earner careers—a group with little end-of-working-life incentives and/or options for changing scheme.

Table 1.8 **Employment regressions by scheme, PVW health index (age group fifty to fifty-four)**

	Men						Women					
	Wage earners		Civil servant		Self-employed		Wage earners		Civil servant		Self-employed	
Variable	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error
PVW index	0.005***	0.000	0.001	0.001	0.005***	0.001	0.005***	0.000	0.004***	0.001	0.002	0.002
Marital status												
Married	0.116***	0.027	0.058	0.040	0.112*	0.062	–0.087***	0.029	0.019	0.045	–0.107	0.097
Skill												
Medium skill	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Low skill	–0.208***	0.043	–0.620***	0.133	–1.141***	0.318	–0.005	0.048	–0.185	0.236	–0.737*	0.418
High skill	0.138***	0.039	0.037	0.037	0.139**	0.065	0.194***	0.052	0.069	0.048	–0.098	0.104
Constant	0.413***	0.035	0.839***	0.057	0.409***	0.090	0.416***	0.035	0.599***	0.059	0.764***	0.123
No. obs.	932		178		116		1,222		239		97	

Note: OLS regression based on SHARE data waves 1, 2, 4, and 5.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Table 1.9 Simulations of work capacity by scheme and sex (PVW health index)

	Men (PVW model)			Women (PVW model)		
Education	Actual % working	Predicted % working	Additional work capacity (%)	Actual % working	Predicted % working	Additional work capacity (%)
Age 55–59						
Wage earners	51.4	77.1	25.7	38.8	60.3	21.5
Civil servants	75.2	92.9	17.7	73.6	83.3	9.7
Self-employed	83.8	83.6	–0.2	72.2	78.8	6.6
Age 60–64						
Wage earners	14.0	76.4	62.4	12.5	59.4	46.9
Civil servants	33.5	92.4	58.9	25.7	84.6	58.9
Self-employed	56.4	80.6	24.2	47.7	78.5	30.8
Age 65–69						
Wage earners	1.2	76.1	74.9	0.9	58.6	57.7
Civil servants	0.4	93.5	93.1	1.0	81.2	80.2
Self-employed	15.7	81.1	65.4	14.5	77.5	63.0
Age 70–74						
Wage earners	0.2	75.2	75.0	0.0	55.5	55.5
Civil servants	0	91.5	91.5	0.0	78.3	78.3
Self-employed	6.4	80.8	74.4	10.5	74.1	63.6

Note: Simulations based on estimates of table 1.8.

lead to more employment as a policy strategy. As already indicated in the introduction, this analysis ignores many factors: household characteristics beyond marital status and workplace or system characteristics beyond the simple dummies for scheme and skill.

In sum, the analysis should be seen as a first step into the direction of a better understanding of what employment potential there is, in light of an ever-increasing need for financial resources to sustain our pension systems, and social protection more generally.

1.4 Conclusion

This chapter explores a dimension that has often been bypassed in the Belgian retirement literature, namely, the one of an individual's work ability. However, work ability is increasingly recognized as a key determinant of retirement, as discussed in Jousten and Salanauskaite (2015). We employ two methodologies to explore the link between changes in the health characteristics of the population and their work ability. To be more specific, the chapter uses employment as a proxy for work ability, hence focusing exclusively on the extensive margin of the link between improved health and work capacity.

Using the Milligan and Wise (2015) methodology linking mortality improvements to employment, we establish a significant employment

potential in the Belgian population—corresponding to potential doubling of employment rates. Similarly, using a richer set of health indicators instead of mortality, the Cutler, Meara, and Richards-Shubik (2012) methodology identifies even more substantial employment potential. When separating the analysis by education level and employment scheme, we derive substantial differences in the population, highlighting the importance of institutional and workplace characteristics.

Clearly, both results should be seen as indicative rather than conclusive, in the sense that they show that improvements in health across time have left the country with a healthier population, hence harboring some degree of unused employment potential. We expressly warrant against a shortcut logic that would claim that the results are evidence of a need of massive activation. Our reading is more prudent: while substantial employment potential seems to exist, other factors such as system, workplace, and household factors are equally important determinants of the ultimate desirability of increased employment. Furthermore, our study of employment as a proxy for work ability can only be seen as a useful first step into a richer investigation of the topic—including the intensive margin of the impact on hours of work—leading us to conclude in the need for further scientific investigation of the subject.

Appendix

Table 1A.1 Employment regressions, all health variables

	Men		Women	
Variable	Coefficient	Std. error	Coefficient	Std. error
Subjective health				
Excellent	Ref.	Ref.	Ref.	Ref.
Very good	0.048	0.034	–0.017	0.037
Good	0.048	0.034	–0.024	0.036
Fair	–0.121***	0.044	–0.150***	0.047
Poor	–0.275***	0.072	–0.336***	0.067
Objective health				
ADL any	0.101**	0.047	–0.051	0.052
IADL any	–0.115**	0.045	–0.096**	0.040
One physical limit	0.043	0.031	0.001	0.032
More than one physical limit	–0.102***	0.035	–0.080**	0.034
Heart disease	–0.048	0.042	–0.036	0.066
Lung disease	–0.082	0.055	–0.108*	0.056
Stroke	–0.132	0.081	–0.186**	0.085
Cancer	–0.173**	0.079	–0.041	0.055
Hypertension	0.015	0.024	0.036	0.028
Arthritis	0.012	0.038	–0.123**	0.055

(*continued*)

Table 1A.1 (continued)

	Men		Women	
Variable	Coefficient	Std. error	Coefficient	Std. error
Diabetes	0.058	0.049	–0.094	0.065
Back problems	–0.009	0.026	–0.027	0.030
Depression	–0.020***	0.005	–0.004	0.005
Psychological disorder	–0.048	0.045	–0.043	0.038
Smoking currently	–0.029	0.025	0.009	0.032
Smoking formerly	–0.024	0.024	0.001	0.027
Underweight	–0.265**	0.106	–0.010	0.076
Overweight	0.002	0.022	–0.032	0.026
Obese	–0.019	0.030	–0.009	0.035
Education				
Primary	Ref.	Ref.	Ref.	Ref.
Secondary	0.060	0.039	0.060	0.043
Tertiary	0.071*	0.041	0.143***	0.045
Marital status				
Married	0.090***	0.022	–0.074***	0.024
Scheme				
Wage earners	Ref.	Ref.	Ref.	Ref.
Self-employed	0.026	0.034	0.107**	0.046
Civil servants	0.075***	0.029	0.174***	0.032
Skill				
Low	Ref.	Ref.	Ref.	Ref.
Medium	–0.188***	0.039	0.046	0.046
High	0.080***	0.029	0.098***	0.037
Constant	0.758***	0.055	0.701***	0.057
No. obs.	*1,226*		*1,558*	

Note: OLS regression based on SHARE data waves 1, 2, 4, and 5.
***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

Table 1A.2 **Simulations of work capacity, all health variables**

Age group	No. obs.	Actual % working	Predicted % working	Additional work capacity (%)
		Men		
55–59	*1,442*	58.5	80.2	21.7
60–64	*1,282*	20.9	79.6	58.7
65–69	*1,049*	3.0	79.3	76.3
70–74	*795*	0.7	75.9	75.2
		Women		
55–59	*1,565*	45.6	65.8	20.2
60–64	*1,325*	16.3	64.4	28.1
65–69	*1,118*	1.7	62.0	60.3
70–74	*962*	0.6	57.3	56.7

Note: Simulations based on estimates of table 1A.1.

References

Aliaj, A., X. Flawinne, A. Jousten, S. Perelman, and L. Shi. 2016. "Old-Age Employment and Hours of Work Trends: Empirical Analysis for Four European Countries." *IZA Journal of European Labor Studies* 5 (16).

Cutler, D., E. Meara, and S. Richards-Shubik. 2012. "Health and Work Capacity of Older Adults: Estimates and Implications for Social Security Policy." Unpublished Manuscript. Available at SSRN: http://ssrn.com/abstract=2577858.

Dellis, A., R. Desmet, A. Jousten, and S. Perelman. 2004. "Micro-Modeling of Retirement in Belgium." In *Social Security Programs and Retirement around the World: Micro-Estimation*, edited by J. Gruber and D. Wise. Chicago: University Chicago Press.

Desmet, R., A. Jousten, S. Perelman, and P. Pestieau. 2007. "Micro-Simulation of Social Security in Belgium." In *Social Security Programs and Retirement around the World: Fiscal Implications of Reform*, edited by J. Gruber and D. Wise. Chicago: University Chicago Press.

Desmette, D., and P. Vendramin. 2014. "Bridge Employment in Belgium: Between an Early Retirement Culture and a Concern for Work Sustainability." In *Bridge Employment: A Research Handbook*, edited by C. Alcover, G. Topa, E. Parry, F. Fraccaroli, and M. Depolo. London: Routlege.

Expert Committee. 2014. "Un Contrat Social Performant et Fiable: Propositions de la Commission de Réforme des Pensions 2020–2040 pour une réforme structurelle des régimes de pension." Service Public Fédéral Sécurité Sociale, Brussels. http://hdl.handle.net/11245/1.474631.

Jousten, A., and M. Lefebvre. 2013. "Retirement Incentives in Belgium: Estimations and Simulations Using SHARE Data." *De Economist* 161:253–76.

Jousten, A., M. Lefebvre, and S. Perelman. 2012. "Disability in Belgium: There Is More Than Meets the Eye." In *Social Security Programs and Retirement around the World: Historical Trends in Mortality and Health, Employment, and Disability Insurance Participation and Reforms*, edited by D. Wise. Chicago: University Chicago Press.

———. 2016. "Health Status, Disability and Retirement Incentives in Belgium." In *Social Security Programs and Retirement around the World: Disability Insurance Programs and Retirement*, edited by D. Wise. Chicago: University of Chicago Press.

Jousten, A., M. Lefebvre, S. Perelman, and P. Pestieau. 2010. "The Effects of Early Retirement on Youth Unemployment: The Case of Belgium." In *Social Security Programs and Retirement around the World: The Relationship to Youth Employment*, edited by J. Gruber and D. Wise. Chicago: University Chicago Press.

Jousten A., and L. Salanauskaite. 2015. "Understanding Employment Participation of Older Workers—National Report: Belgium." In *Understanding Employment Participation of Older Workers: Creating a Knowledge Base for Future Labour Market Challenges*, edited by H.-M. Hasselhorn and W. Apt. Berlin: Federal Ministry of Labour and Social Affairs.

Milligan, K., and D. Wise. 2015. "Health and Work at Older Ages: Using Mortality to Assess the Capacity to Work across Countries." *Journal of Population Aging* 8 (1–2): 27–50.

Poterba, James, Steven Venti, and David A. Wise. 2013. "Health, Education, and the Post-Retirement Evolution of Household Assets." *Journal of Human Capital* 7 (4): 297–339.

Schreurs, B., H. Van Emmerik, N. De Cuyper, G. Notelaers, and H. De Witte. 2011. "Job Demands-Resources and Early Retirement Intention: Differences between

Blue- and White-Collar Workers." *Economic and Industrial Democracy* 32 (1): 47–68.

Van Looy, D., M. Kovalenko, D. Mortelmans, and H. De Preter. 2014. *Working Hour-Reduction in the Move to Full Retirement: How Does This Affect Retirement Preferences of 50+ Individuals in Flanders?* Leuven: Steunpunt Werk en Sociale Economie. Antwerpen: CELLO, Universiteit Antwerpen.