Times before and after retirement: Subjective well-being and its anticipation and adaptation effects – A panel analysis for Germany

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Agenda

- Motivation
- Literature
- Empirical Strategy
- Results
- Conclusion

General importance

For the individual as well as for society the question as to the quality of life and life satisfaction in the longer period of life after retirement is one of special importance, a question we pursue in this study.

And, there is a close correlation between life satisfaction and a longer life: “Older people who enjoy life stay in better shape longer” is a summary of the results of a recent British study by Steptoe et al. 2014

Central research question

Does retirement lead to greater life satisfaction?

Are there anticipation and adaptation effects?

- Anticipation: Change in expecting an event
- Adaptation: Change after occuring an event

In particular,
Is individual life satisfaction decreasing before retirement as a result for instance of fatigue brought about by work, then almost as a release soars in retirement,
but after a certain period of time drops back to the previous level of life satisfaction?

Literature

Satisfaction, Happiness, Subjective Well-Being

General

Overview of the last 30 years on subjective well-being: Diener et al. 1999

Income and subjective well-being : Easterlin 2001, Clark and Oswald 1995, Diener and Biswas-Diener 2002, Clark et al. 2008a, Clark 2018

Anticipation and adaptation effects of life satisfaction in different life events such as divorce, the birth of a child etc.: Clark et al. 2008b, Clark 2018; job satisfaction: Hanglberger 2013; self-employment: Hanglberger and Merz 2015

Politics

Happiness and Public Policy: Layard 2006, Stiglitz-Sen-Fitoussi Report 2009

Enquete Commission of the German Federal Parliament 2013, “Growth, Wellbeing and Quality of Life”; Bhutan “Gross national happiness product”

Life satisfaction and retirement

International

Calasanti 1996 : *gender-specific influence* on life satisfaction in retirement, theories approaches: ***crisis and continuity theories***, USA

Crisis theory: occupational role as major source of validation, satisfaction influenced if no other activities than the work role is found.

Continuity theory: personal identity through the development of other roles in retirees' lives. Retirement as an acceptable role in society and hence provide self-esteem and satisfaction; work is not further a central orientation

Calvo et al. 2014: graduate retirement (one year before and after), effect on happiness, USA): chosen or forced transition matters rather than graduate or "cold turkey"

Nimrod 2007: four explanations for the relationship between life satisfaction and retirement: "***reducers, concentrators, diffusers and expanders***"; Israel: the expanders and the concentrators enjoyed a significantly higher life satisfaction)

Horner 2014: retirement and subjective well-being for ***14 Western European countries, UK and the USA***, cross-sectional data show a positive subjective well-being effect that fades over a few years

Life satisfaction and retirement

Germany

Börsch-Supan and Jürges 2006: early retirement and subjective well-being, SOEP, pre-retirement satisfaction level attained after a relatively short while after retirement; ***early retirement effect on well-being appears to be negative and short-lived*** rather than positive and long.

Mayring 2000: retirement as luckiness or crisis with 329 standardized interviews.

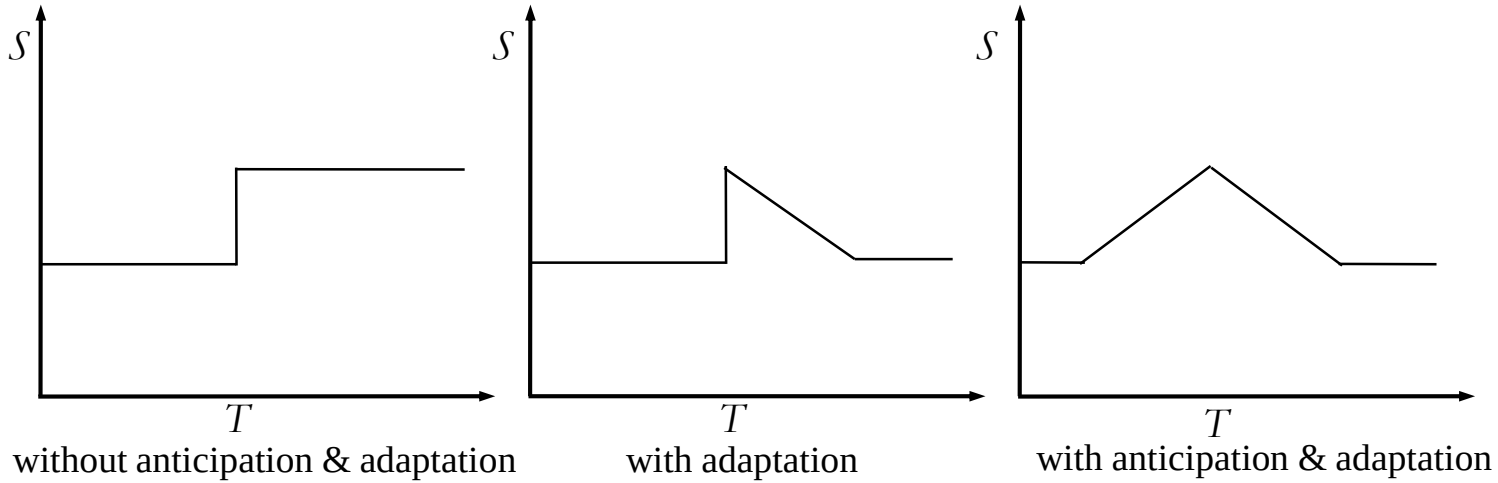
Dudel et al. 2013: how much retirement income is needed in order to maintain one's living standard at old age, SOEP; net replacement rate of about 87% entry year, then slightly declining.

…

Anticipation and adaptation in empirical analyses

Anticipation: Spill-Over Effekt (Elster 1985, MacLeod and Conway 2005), Contrast effect (Elster 1999, good past or future event devaluates presence), Ashenfelter‘s Dip

Adaptation: hedonic treadmill model (Brickman und Campbell 1971, Frederick und Loewenstein 1999; Oswald & Powdthavee 2008, Clark 2018); Permant stimulus reduces attention, satisfaction; leads to an adjustment of aspiration level



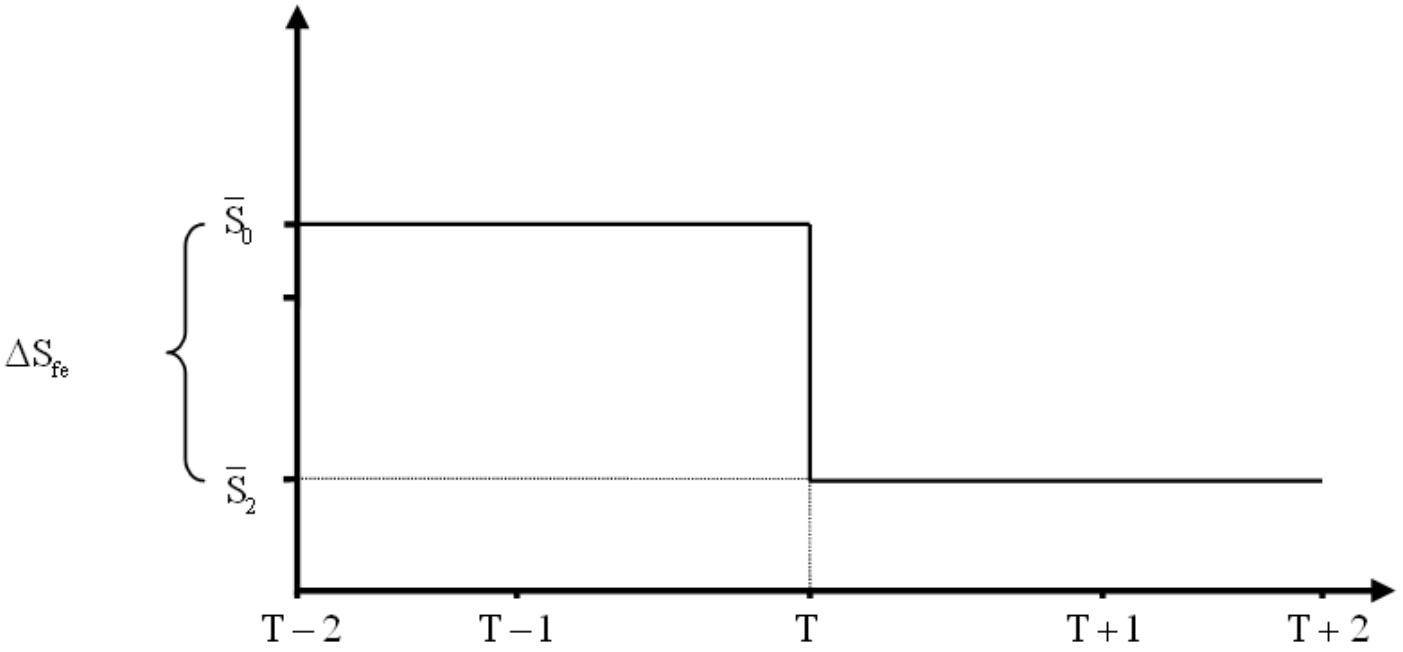
without anticipation & adaptation | with adaptation | with anticipation & adaptation

Empirical Strategy

Aim: Estimation of long run effect of retirement on life satisfaction

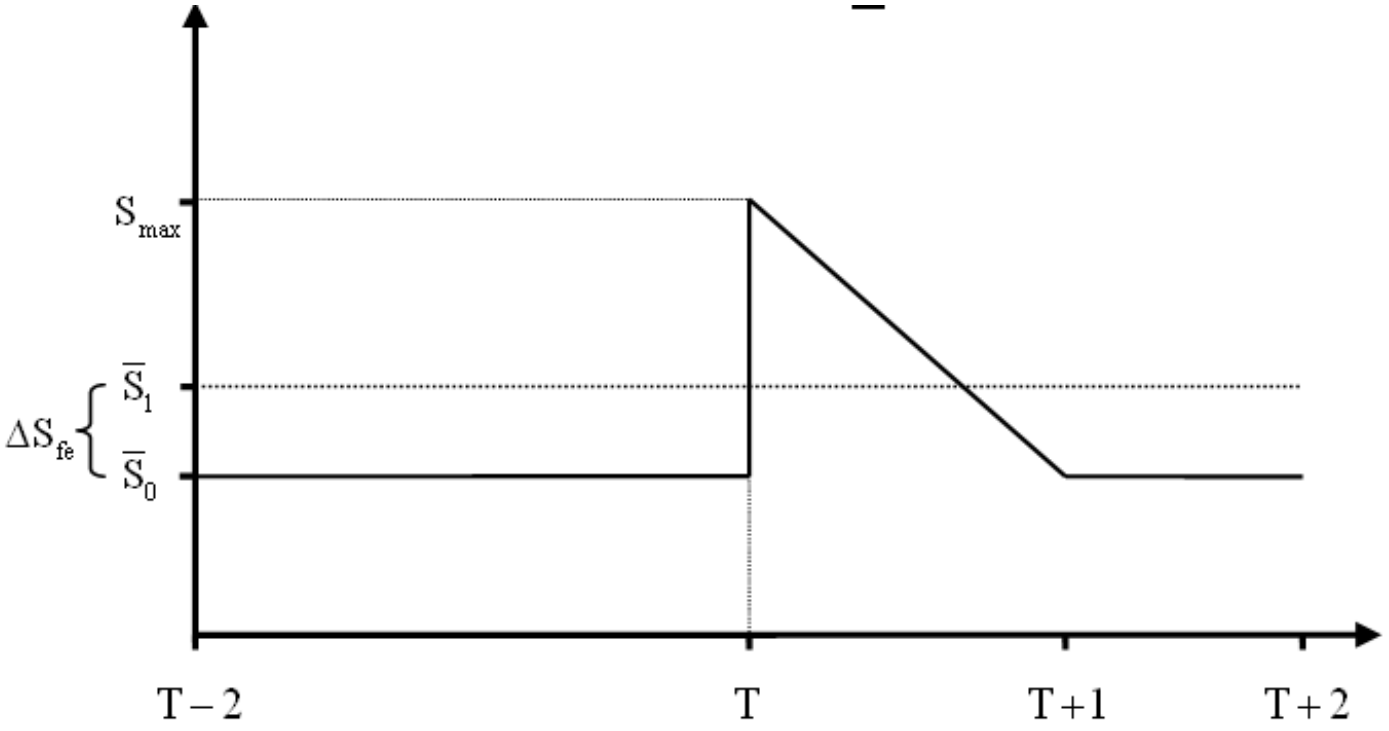
Causality perspective: Retirement as treatment

Panel data estimation with fixed effects regression models, considers unobserved heterogeneity and solves the selectivity problem



Causal effect: $\Delta S_{fe} = (\bar{S}_2 - \bar{S}_0)$

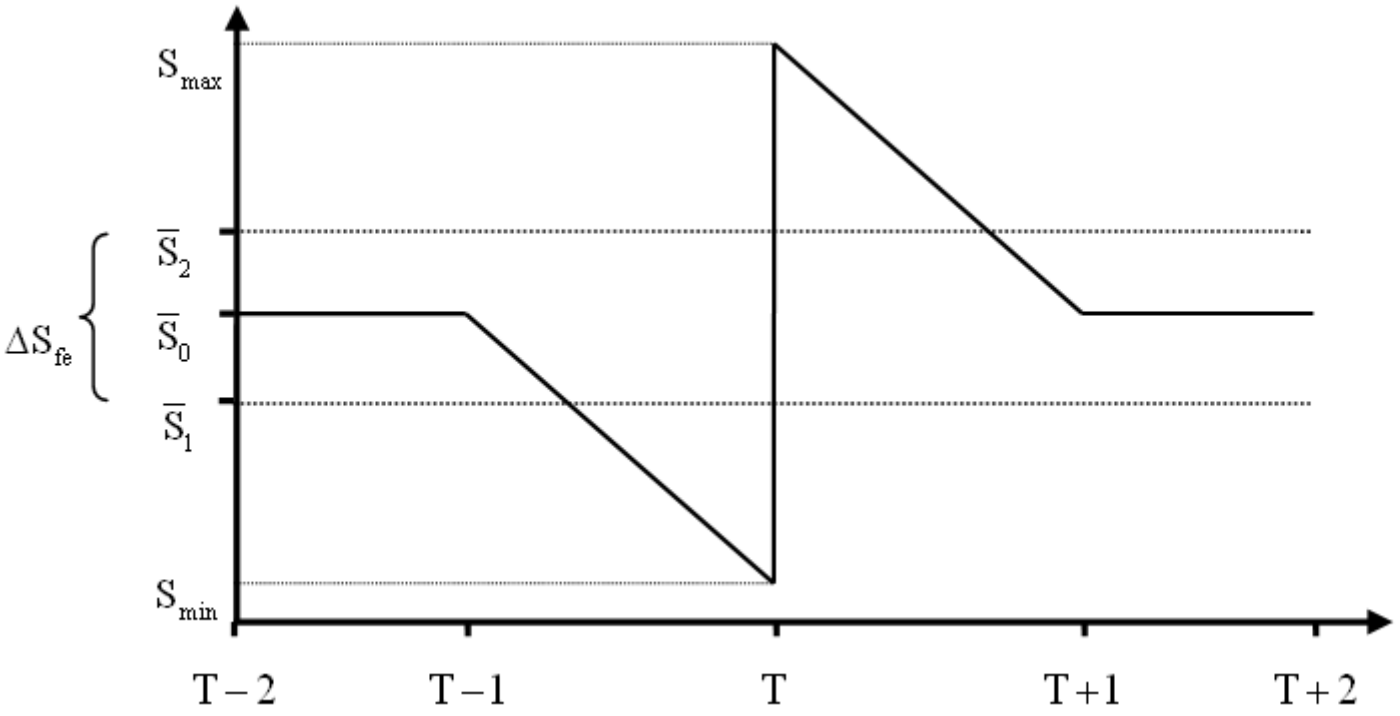
Distorted results when adaptation is neglected



Fixed-effects without adaptation effect: $\Delta S_{fe} = (\bar{S}_1 - \bar{S}_0)$

-> would overestimate the long term effect

Distorted results when anticipation & adaptation are neglected



Fixed-effects without anticipation & adaptation effect: $\Delta S_{fe} = (\bar{S}_2 - \bar{S}_1)$

-> would increase overestimation of long term effect

Model I fixed effects without anticipation & adaptation effects

$$S_{it} = f_{it}\,\gamma + \mathbf{x}_{it}^{'}\boldsymbol{\beta} + a_i + \varepsilon_{it}$$

Model II fixed effects with anticipation and adaptation effects

$$\begin{aligned} S_{it} = {} & f_{it,T-4}\gamma_{T-4} + f_{it,T-3}\gamma_{T-3} + f_{it,T-2}\gamma_{T-2} + f_{it,T-1}\gamma_{T-1} + f_{it,T}\gamma_{T} \\ & + f_{it,T+1}\gamma_{T+1} + f_{it,T+2}\gamma_{T+2} + f_{it,T+3}\gamma_{T+3} + f_{it,T+4}\gamma_{T+4} + f_{it,T+5}\gamma_{T+5} \\ & + f_{it,T+6}\gamma_{T+6} + f_{it,T+7}\gamma_{T+7} + f_{it,T+8}\gamma_{T+8} + f_{it,T+9+}\gamma_{T+9+} + \mathbf{x}_{\mathbf{it}}^{'}\boldsymbol{\beta} + a_i + \varepsilon_{it} \end{aligned}$$

Model alternatives

Model	Retirement	Controls
Ia	Dummy	–
Ib	Dummy	Yes
IIa	Anticipation and Adaptation	–
IIb	Anticipation and Adaptation	Yes

German Socio-Economic Panel (SOEP)

Wide-ranging representative longitudinal annual panel study of private households since 1984

Topics : household structure, employment, earnings, health, satisfaction indicators, time use

SOEP Daten 1984 – 2016, Long-Dataset with 33 waves

Definitions

Retirement

Focus on the detailed pension payments in the SOEP long data set which allows separate analyses of

Compulsory old age security pension from the German Pension Insurance (Gesetzliche Rentenversicherung, GRV) and

Civil service pension scheme (Beamtenversorgung).

Life satisfaction

General life satisfaction that is collected from all respondents with a scale from 0 (completely dissatisfied) to 10 (completely satisfied).

General Satisfaction/Well-Being

135. In conclusion, we would like to ask you about your satisfaction with your life in general.

☞ *Please answer according to the following scale:*
"0" means completely dissatisfied ,"10" means completely satisfied.

How satisfied are you with your life, all things considered?

0 1 2 3 4 5 6 7 8 9 10

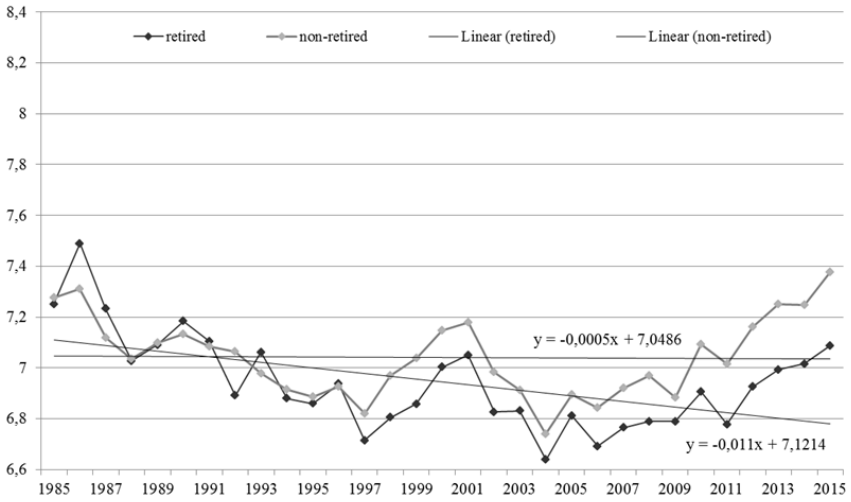
completely ***dissatisfied*** — completely ***satisfied***

Source: Individual-Questionnaire, Question 135, SOEP 2002

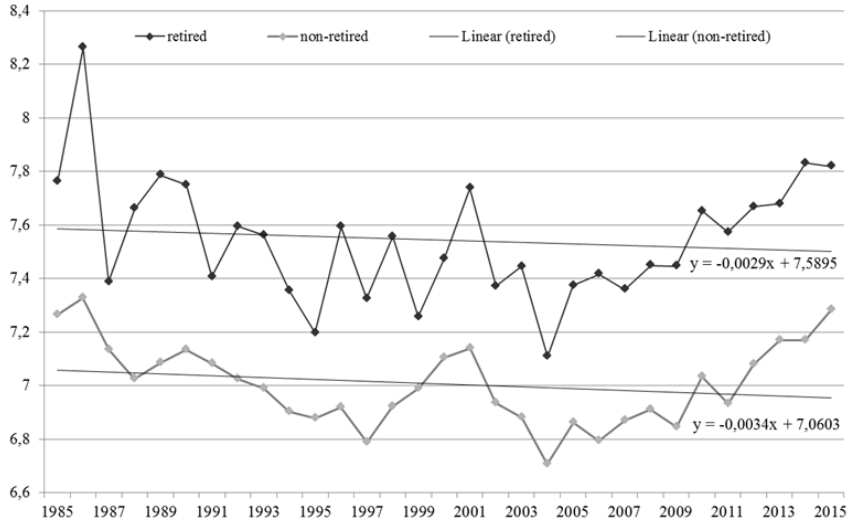
Results

Figure 1: Average life satisfaction retired and non-retired, Germany 1985-2015

Pensioners GRV



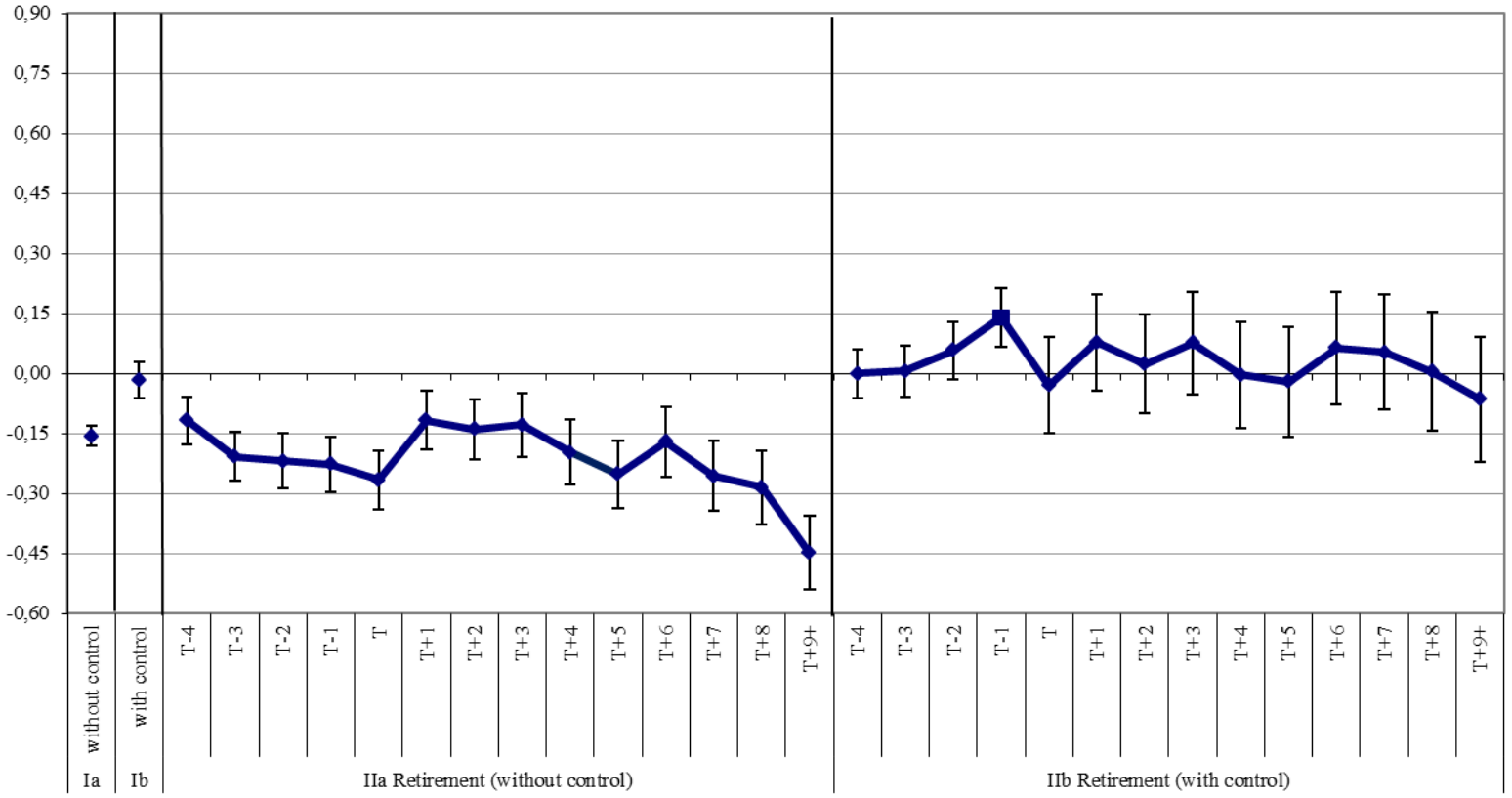
Civil service pensioners



Pension GRV: less satisfied (mean 6.91) than others, increasing gap since 2004
Civil service pension: more satisfied (mean 7.54) than others

Results Pension GRV

Figure 3: The effect of retirement (pension, GRV) on life satisfaction in fixed-effects robust regression models with and without accounting for anticipation and adaptation, Germany 1985 to 2015



Source:SOEP Socio-Economic Panel data 1985-2015; 95% confidence intervals (robust standard errors)

Results Pension GRV

Model Ia (without controls): The general retirement effect on life satisfaction is negative and highly significant (α=0.001, n=482,289 observations); pensioners are less satisfied than non-pensioners in the long run.

Model Ib (with controls): Surprisingly, when accounting for controls the retirement coefficient is still negative -.017, however, not significant (p-value=0,544). Thus, retirement on average does not lead to any significant change in life satisfaction

Model IIa (without controls): Firstly: All lead and lag coefficients are *negative and significant. Secondly: Anticipation* effect with falling life satisfaction till retirement, a rise in life satisfaction in the first retirement year and then an *adaptation* effect shortly interrupted only in T+6, a sad picture with respect to a longer retirement perspective.

Model IIb (with controls): there is a *significant positive anticipation effect* till the pre-retirement period (T-1). Life satisfaction declines in the retirement period T, with some ups and downs and decrease from T+7 on. However, all the effects from the retirement period T till T+9+ are not significant. What remains is only one significant positive effect in the pre-retirement period T-1.

Model II and alternative socio-economic controls

The above result astonishes. What are the driving factors which lift the without picture of negative anticipation and adaptation and vanishes all 14 period life satisfaction effects around individual retirement? Figure 4 summarizes some alternative Model llb specifications and estimation results with the following embracing domains:

- ***Personal (1)***: close personal (age, married, widowed, health, physicians visits), education, Big 5,
- ***Extended Personal (2)***: *personal (1),* social participation (hobbies, voluntary work, active in political parties or citizen initiatives), care, household size, number of children,
- ***Personal and occupation (3)****: Personal (1),* occupational status, job (weekly working hours),
- ***Extended Personal and occupation (all) (4):*** *Extended Personal (2),* occupational status, job (weekly working hours).

Table 2: The effect of retirement (pension GRV) on life satisfaction in fixed-effects regression models with and without accounting for anticipation and adaptation – Regression results, Germany 1985 to 2015

	Model Ia coefficient	p-value	Model Ib coefficient	p-value	Model IIa coefficient	p-value	Model IIb coefficient	p-value
Life satisfaction								
RETIREMENT								
Retirement	-0.156***	0.000	-0.0171	0.544				
Retirement T-4					-0.118**	0.001	-0.000598	0.987
Retirement T-3					-0.208***	0.000	0.00656	0.866
Retirement T-2					-0.218***	0.000	0.0567	0.185
Retirement T-1					-0.228***	0.000	0.140**	0.002
Retirement T					-0.266***	0.000	-0.0293	0.689
Retirement T+1					-0.117**	0.009	0.0776	0.288
Retirement T+2					-0.140**	0.002	0.0239	0.751
Retirement T+3					-0.128**	0.008	0.0762	0.331
Retirement T+4					-0.197***	0.000	-0.00390	0.961
Retirement T+5					-0.252***	0.000	-0.0207	0.804
Retirement T+6					-0.170**	0.001	0.0633	0.461
Retirement T+7					-0.257***	0.000	0.0525	0.548
Retirement T+8					-0.285***	0.000	0.00443	0.961
Retirement T+9+					-0.448***	0.000	-0.0646	0.495
PERSONAL DATA								
Age			-0.0528***	0.000			-0.0431	0.203

Table 2 cont.: The effect of retirement (pension GRV) on life satisfaction in fixed-effects regression models with and without accounting for anticipation and adaptation – Regression results, Germany 1985 to 2015

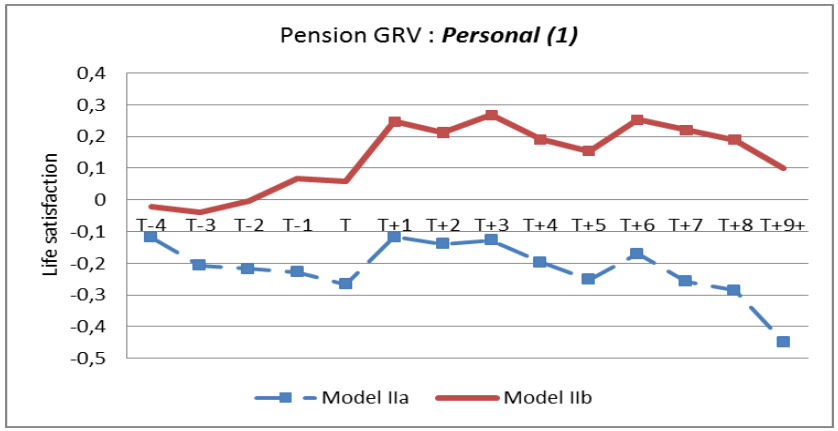
Age²	0.00348	0.545	-0.00627	0.694
Married	0.0999***	0.000	0.0754*	0.024
Widowed	-0.214***	0.000	-0.318***	0.000
Health	-0.482***	0.000	-0.472***	0.000
Physician visits	-0.00995***	0.000	-0.0126***	0.000
Education	-0.743***	0.000	-0.597	0.185
Education²	0.0271***	0.000	0.0242	0.139
Big 5: Openness	-1.105***	0.000	-0.651	0.220
Big 5: Conscientiousness	-0.532	0.103	-1.883*	0.020
Big 5: Extraversion	0.997*	0.030	2.300*	0.022
Big 5: Agreeableness	-1.640***	0.000	-1373	0.230
Big 5: Neuroticism	-0.370	0.117	-0.346	0.608
OCCUPATION				
Freelancer	-0.0926**	0.009	-0.126	0.172
Entrepreneur	-0.101***	0.000	-0.109+	0.084
Blue collar worker	-0.0639***	0.000	-0.0867+	0.052
White collar worker	-0.0753***	0.000	-0.132**	0.002
Civil servant (*Beamter*)	-0.187***	0.000	-0.248**	0.003
Unemployed (registered)	-0.549***	0.000	-0.434***	0.000
JOB				
Working hours	0.00554***	0.000	0.00779**	0.001
Working hours²/100	-0.00892***	0.000	-0.00971**	0.002
Earned income	0.000130***	0.000	0.000237***	0.000
Earned income²/1000	-0.00000111**	0.007	-0.00000749+	0.091

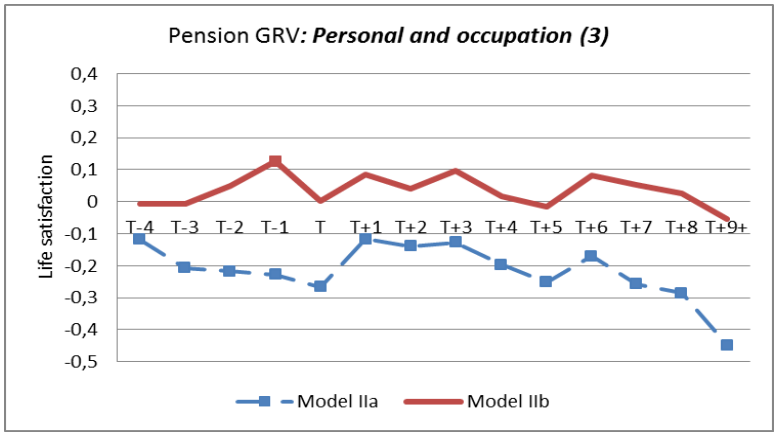
Table 2 cont.: The effect of retirement (pension GRV) on life satisfaction in fixed-effects regression models with and without accounting for anticipation and adaptation – Regression results, Germany 1985 to 2015

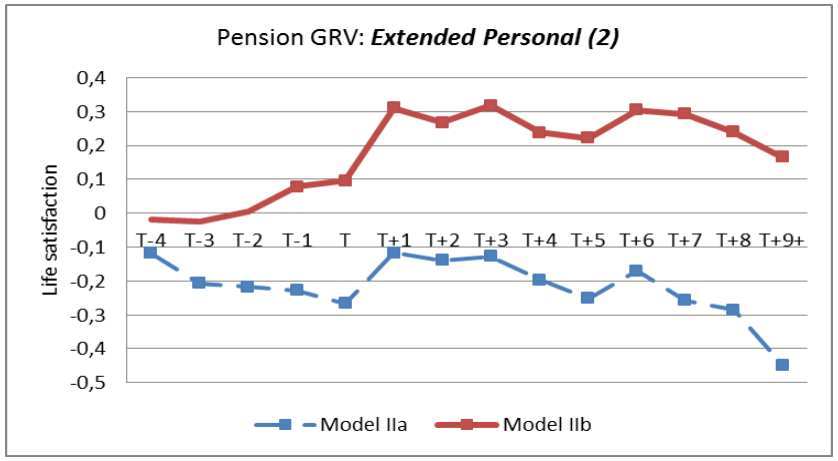
Pension GRV amount			0.000239***	0.000			0.000269**	0.009
Pension GRV amount²/1000			-0.0000176**	0.005			-0.0000406	0.254
SOCIAL PARICIPATION								
Hobbies			0.00594**	0.003			0.0127**	0.002
Volunteer/Political			0.000108	0.990			-0.00203	0.906
HOUSEHOLD / FAMILY								
Care			-0.442***	0.000			-0.342***	0.000
Household size			-0.0375***	0.000			-0.0380**	0.005
No. of Children (<19 years)			0.0288***	0.000			0.0478**	0.003
Residual income			0.0000767***	0.000			0.000112***	0.000
Residual income²/10000			- 0.0000042***	0.000			-0.0000466***	0.000
REGION								
East			-0.0334	0.411			0.158+	0.070
Constant	7.089***	0.000	29.08***	0.000	6.941***	0.000	25.40*	0.047
R2 within	0.000708		0.0860		0.00280		0.0809	
F-Test	111.67***		3.24***		8.32***		2.62***	
avg. observations	9.5		9.7		8.1		7.7	
max. observations	31		22		17		15	
Persons/groups	51024		30689		11006		10342	
Observations	482289		296674		89200		79308	

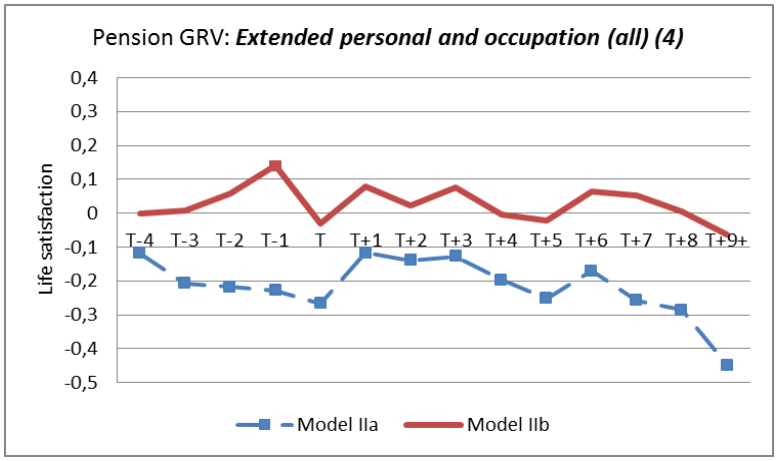
Note: t statistics based on robust standard errors in parentheses; + p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001
Source: Results of fixed-effects regression Models Ia,b and IIa,b with SOEP Socio-Economic Panel data 1985-2015.

Figure 6: The effect of retirement (pension, GRV) on life satisfaction in alternative socio-economic control domains when accounting for anticipation and adaptation (Model IIb), Germany 1985 to 2015









Source: Fixed-effects regression Models IIa (without controls) and Model IIb (with controls), SOEP Socio-Economic Panel data 1985-2015; dots mark significant influence (with robust standard errors) with at least 10% significance.

Results: Pension GRV - Model II and alternative socio-economic controls

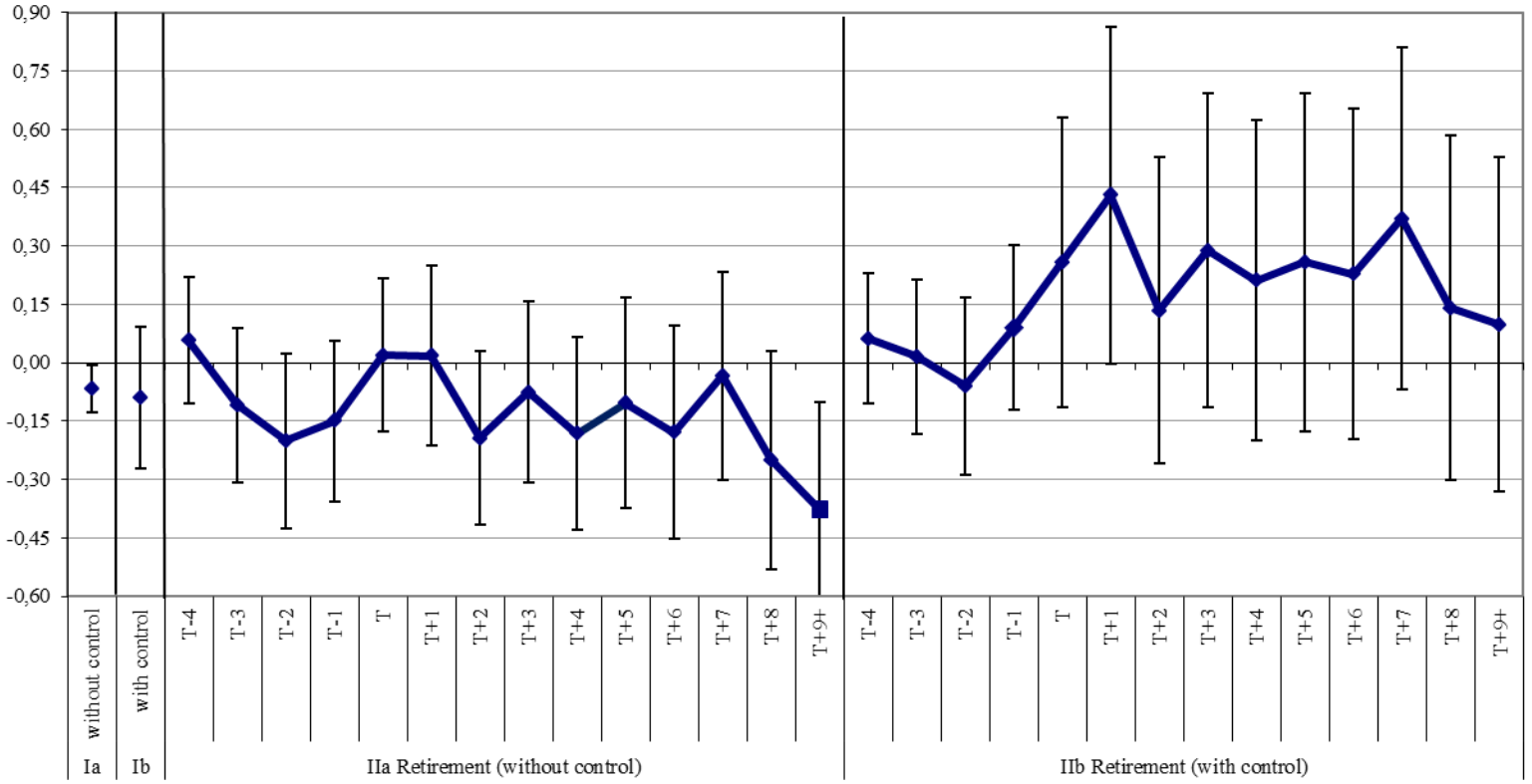
Personal (1) and ***Extended Personal (2)*** both lift the negative single period effects of Model IIa (without controls) into even positive effects on life satisfaction. *Anticipation* up to the first post-retirement period T+1, then some fluctuations around that significant level; *adaptation* from period T+6 with falling life satisfaction.

Remarkably, when ***occupation*** (occupational status and job variable) is added, then occupation strongly diminishes the personal lift effect and only one significant period remains overall (***Personal and occupation (3)***.

Yet, the strong absorbing occupation effect could not be hindered by the extended personal factors (***Extended Personal and occupation (all) (4)***.

Results Civil Service Pension

Figure 7: The effect of retirement (civil service pension) on life satisfaction in fixed-effects robust regression models with and without accounting for anticipation and adaptation, Germany 1985 to 2015

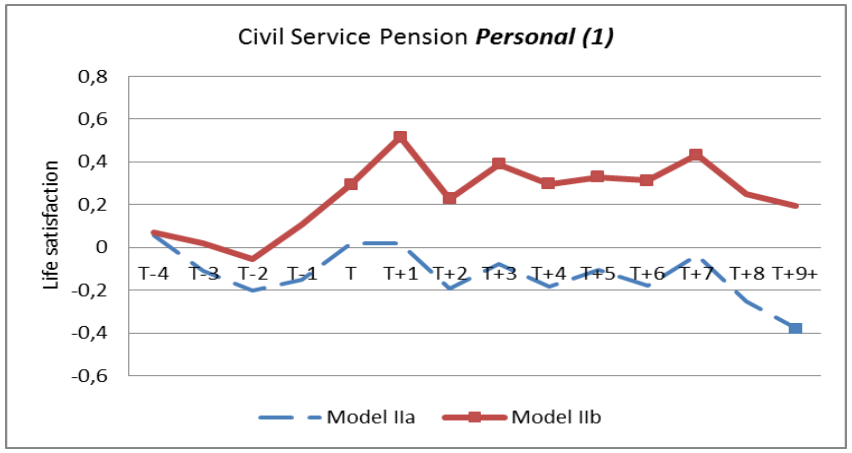


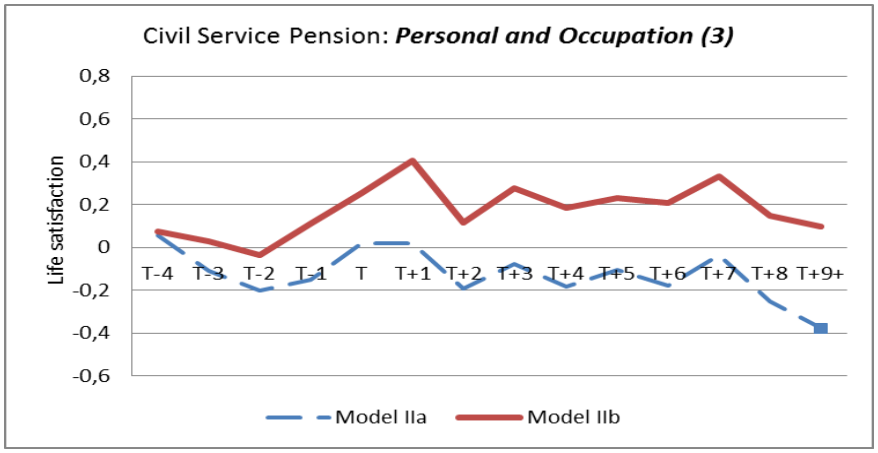
Source:SOEP Socio-Economic Panel data 1985-2015; 95% confidence intervals (robust standard errors)

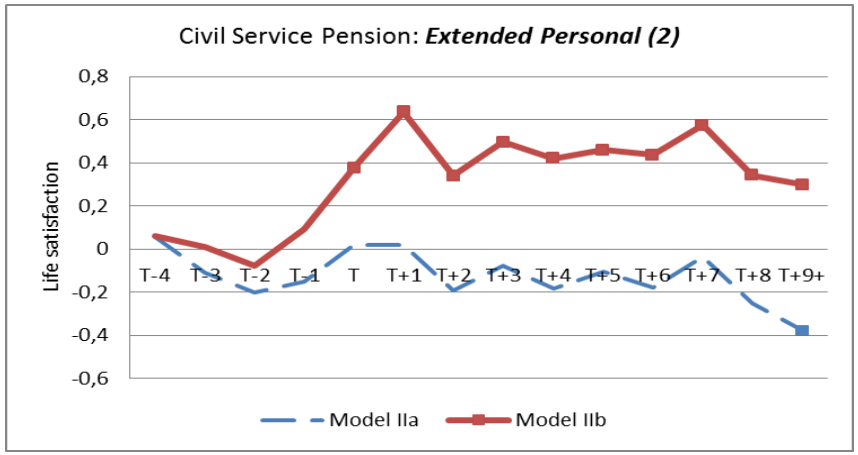
Results Civil Service Pension

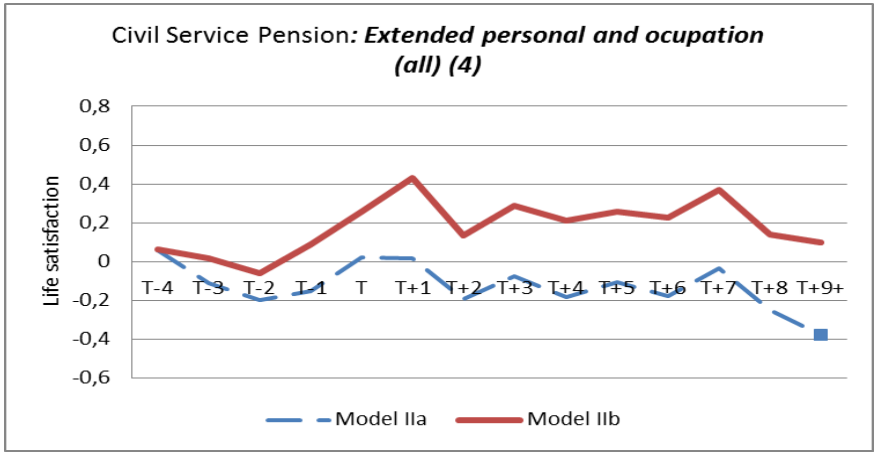
No significant anticipation and no distinct adaptation (but with falling life satisfaction in the long run T+9+ in Model IIa) has to be recorded for civil service pensioners in Germany 1985 till 2015.

Figure 7: The effect of retirement (civil service pension) on life satisfaction in alternative socio-economic control domains when accounting for anticipation and adaptation (Model IIb), Germany 1985 to 2015









Source: Fixed-effects regression Models IIa (without controls) and Model IIb with controls), SOEP Socio-Economic Panel data 1985-2015; dots marks significant influence (with robust standard errors) with at least 10% significance

Results: Civil Service Pension - Model II and alternative socio-economic controls

The inclusion of different socio-economic control domains act in the same manner for both pensions systems, pension GRV and civil service pension:

the individual *occupational* background absorbs (almost) all positive furthermore significant individual socio-economic effects of retirement on life satisfaction.

Conclusion

Key finding results without socio-economic controls

Pensioners (GRV) *less satisfied* but civil service pensioners *more satisfied* than others; in general 1985-2015 in Germany.

Pensioners (GRV) negative significant (Models Ia and IIa), civil service pensioners negative but no significant retirement impact (exemption T+9+).

Key finding results with socio-economic controls

Surprisingly, the *occupational background* absorbs (almost) all positive significant individual *personal* socio-economic retirement effects on life satisfaction (for both pensioner groups).

Socio-economic background: It remains only one period of improvement with close anticipation and adaptation at entering retirement but no furthermore significant change compared to pre-retirement life satisfaction (pensioners GRV).

Anticipation

Significant positive anticipation effect (pensioners GRV); like a honeymoon effect expecting the paradise without working any more (Atchley (1976).

Adaptation

Significant, straight after the pre-retirement-period improvement with a later neutral effect (pensioners GRV); a result similar to Horner 2014 but there with less periods under investigation.

No significant anticipation and adaptation for civil service pensioners neither with nor without controls.

An offered narrative

It is the individual's personal and family life situation, social participation with its personal traits behind, its experience and expectations which overcomes a pure retirement effect.

Though many personal circumstances even increase life satisfaction for some periods, yet the constituting (former) work life conditions vanishes all the positive effect.

Why? Because work life for many is the (only) center of life which is structuring the living conditions at all. Retirement then will tear the anchor and sense of life so far.

The lesson from this study

The more you could be free from the (former) job circumstances the more satisfied you will be when retired.

Thank you for your attention

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Table 2: The effect of retirement (pension GRV) on life satisfaction in fixed-effects regression models with and without accounting for anticipation and adaptation – Regression results, Germany 1985 to 2015

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Married	0.0999***	0.000	0.0754*	0.024
Widowed	-0.214***	0.000	-0.318***	0.000
Health	-0.482***	0.000	-0.472***	0.000
Physician visits	-0.00995***	0.000	-0.0126***	0.000
Education	-0.743***	0.000	-0.597	0.185
Education²	0.0271***	0.000	0.0242	0.139
Big 5: Openness	-1.105***	0.000	-0.651	0.220
Big 5: Conscientiousness	-0.532	0.103	-1.883*	0.020
Big 5: Extraversion	0.997*	0.030	2.300*	0.022
Big 5: Agreeableness	-1.640***	0.000	-1373	0.230
Big 5: Neuroticism	-0.370	0.117	-0.346	0.608
OCCUPATION				
Freelancer	-0.0926**	0.009	-0.126	0.172
Entrepreneur	-0.101***	0.000	-0.109+	0.084
Blue collar worker	-0.0639***	0.000	-0.0867+	0.052
White collar worker	-0.0753***	0.000	-0.132**	0.002
Civil servant (*Beamter*)	-0.187***	0.000	-0.248**	0.003
Unemployed (registered)	-0.549***	0.000	-0.434***	0.000
JOB				
Working hours	0.00554***	0.000	0.00779**	0.001
Working hours²/100	-0.00892***	0.000	-0.00971**	0.002
Earned income	0.000130***	0.000	0.000237***	0.000
Earned income²/1000	-0.00000111**	0.007	-0.00000749+	0.091

Table 2 cont.: The effect of retirement (pension GRV) on life satisfaction in fixed-effects regression models with and without accounting for anticipation and adaptation – Regression results, Germany 1985 to 2015

Pension GRV amount			0.000239***	0.000			0.000269**	0.009
Pension GRV amount²/1000			-0.0000176**	0.005			-0.0000406	0.254
SOCIAL PARICIPATION								
Hobbies			0.00594**	0.003			0.0127**	0.002
Volunteer/Political			0.000108	0.990			-0.00203	0.906
HOUSEHOLD / FAMILY								
Care			-0.442***	0.000			-0.342***	0.000
Household size			-0.0375***	0.000			-0.0380**	0.005
No. of Children (<19 years)			0.0288***	0.000			0.0478**	0.003
Residual income			0.0000767***	0.000			0.000112***	0.000
Residual income²/10000			- 0.0000042***	0.000			-0.0000466***	0.000
REGION								
East			-0.0334	0.411			0.158+	0.070
Constant	7.089***	0.000	29.08***	0.000	6.941***	0.000	25.40*	0.047
R2 within	0.000708		0.0860		0.00280		0.0809	
F-Test	111.67***		3.24***		8.32***		2.62***	
avg. observations	9.5		9.7		8.1		7.7	
max. observations	31		22		17		15	
Persons/groups	51024		30689		11006		10342	
Observations	482289		296674		89200		79308	

Note: t statistics based on robust standard errors in parentheses; + p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001
Source: Results of fixed-effects regression Models Ia,b and IIa,b with SOEP Socio-Economic Panel data 1985-2015.

Nimrod‘s 2007 four theoretical types of perceived post-retirement behavior:

(1) *expanders*—people who report participation in a larger number of activities at a higher frequency,
(2) *reducers*—people who report participation in the same or in fewer activities at the same or at a lower frequency,
(3) *concentrators*—people who report participation in the same, or in fewer activities, but at a higher frequency, and
(4) *diffusers*—people who report participation in a larger number of activities but at the same or at a lower frequency.

Nimrod 2007: Are there differences among the four types in:

…
Life satisfaction (i.e., which type is associated with higher life satisfaction)?

Result: Indication that the ***expanders*** and the ***concentrators*** enjoyed a significantly higher life satisfaction.

What aspects of personality does this tell me about?

There has been much research on how people describe others, and five major dimensions of human personality have been found. They are often referred to as the OCEAN model of personality, because of the acronym from the names of the five dimensions. Here are your results:

Open-Mindedness

High scorers tend to be original, creative, curious, complex; Low scorers tend to be conventional, down to earth, narrow interests, uncreative.

You enjoy having novel experiences and seeing things in new ways. (Your percentile: 96)

Conscientiousness

High scorers tend to be reliable, well-organized, self-disciplined, careful; Low scorers tend to be disorganized, undependable, negligent.

You are well-organized, and are reliable. (Your percentile: 79)

Extraversion

High scorers tend to be sociable, friendly, fun loving, talkative; Low scorers tend to be introverted, reserved, inhibited, quiet.

You tend to shy away from social situations. (Your percentile: 31)

Agreeableness

High scorers tend to be good natured, sympathetic, forgiving, courteous; Low scorers tend to be critical, rude, harsh, callous.

You tend to consider the feelings of others. (Your percentile: 74)

Negative Emotionality

High scorers tend to be nervous, high-strung, insecure, worrying; Low scorers tend to be calm, relaxed, secure, hardy.

You probably remain calm, even in tense situations. (Your percentile: 1)