



A Paradox Revisited:

The Interplay between Life Satisfaction, Health, and Negative Events Late in Life

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Life Satisfaction and Old Age

PARADOX: Stable subjective well being despite severe losses:

Brandtstädter & Greve 1994;
Baltes & Carstensen 1996
Staudinger 2000

findings are mainly based on cross-sectional studies

Longitudinal Studies: Schilling 2006 with GSOEP

- Life Satisfaction is highly stable across adult life span
- Relative position of life satisfaction remains intact
- Small age-related decline in mean levels of life-satisfaction
- Decline seems to accelerate at old age



Trajectories of Disability

Trajectories of Disability and Health:

- functional impairment (Maddox and Clark 1992; Verbrugge et al. 1994; Li et al. 2000; Liang et al. 2003; Doblhammer and Hoffmann 2007)
- physical symptoms (Aldwin, Spiro, Levenson & Cupertino 2001)
- health trajectories (Clipp, Pvalko, & Elder, 1992 ; Liang et al.2005; McDonough and Berglund 2003)

Intertwining Courses:

- Functional Status and Subjective Health (Liang et al. 2007)
- Impairment and Depressive Symptoms (Taylor and Lynch 2004)



Aims of this Study

(1) Identify different course types of life satisfaction.

(2) Assess their relative frequency.

PARADOX ??

(1) Analyze their association with trajectories of health.

(2) Analyze their association with
baseline socio-economic status and
negative life-course events.



Cluster Analysis

1. **Level of disability: intercept** of a linear regression model
2. **Direction of change: the slope of the model**
 - a positive slope indicates deterioration;
 - a negative one indicates an improvement in disability.
3. **Concavity/convexity of the time trend: difference linear /quadratic model**
 - a positive difference indicates a convex shape,
 - a negative one indicates a concave shape.
4. The **variability** of the trajectory: **root mean square error of the quadratic function.**



Linear Regression: Interplay between disability and life satisfaction

Two Dependent Variables:

Level of life satisfaction = intercept of the individual level regressions measured in 1998

Slope of life satisfaction = slope of the individual level regressions

Explanatory Variable Disability:

operationalized as and derived from individual level regressions (input to cluster analysis)

- Level of disability
- Slope of disability
- Variability of disability
- Concavity/Convexity of disability



GSOEP - Questionnaire

Life Satisfaction

Since 1984 every year

“At the end we like to ask you for your satisfaction with your entire life. Please answer by using the following scale, in which 0 means totally unhappy and 10 totally happy.

- How happy are you at present with your life as a whole?

Disability

In the years 1984 to 1987, 1992, 1995 to 2001

“Not regarding occasional illnesses, is the fulfilment of everyday activities, e.g. in the household, your job or education hindered by your condition of health, and, if so, to what extent?”

Not at all, slightly, to a great extent.



Data

Samples A and C of the GSOEP
3919 persons aged 50+ in 1995

497 died between 1995 and 2001

592 attrition between 1995 and 2001

2830 Survivors from 1995 to 2001

2639 with full info on disability (191 missing values)

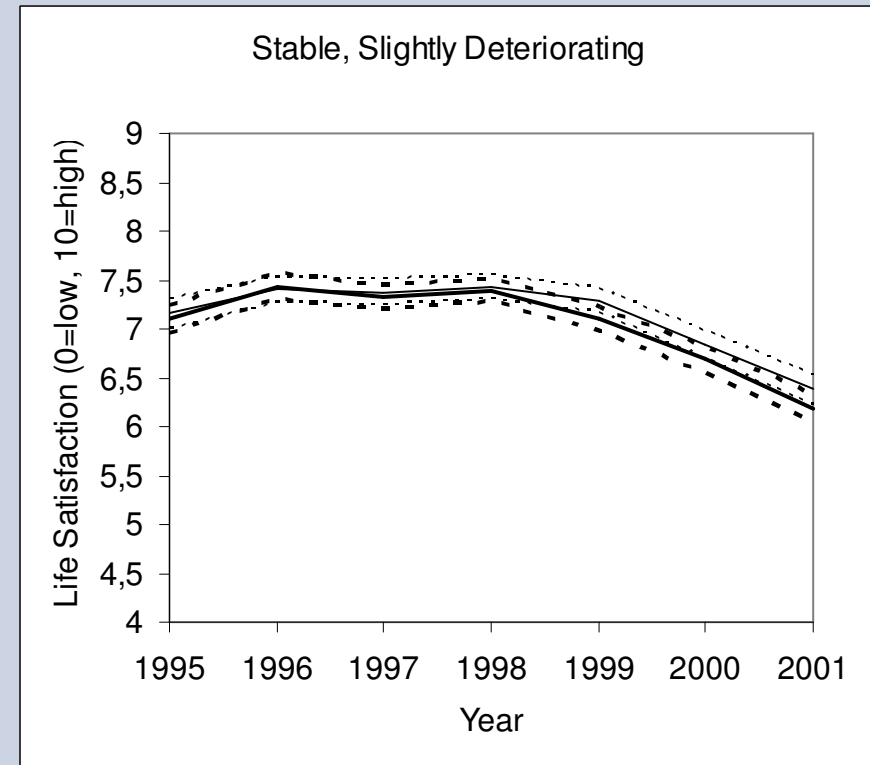
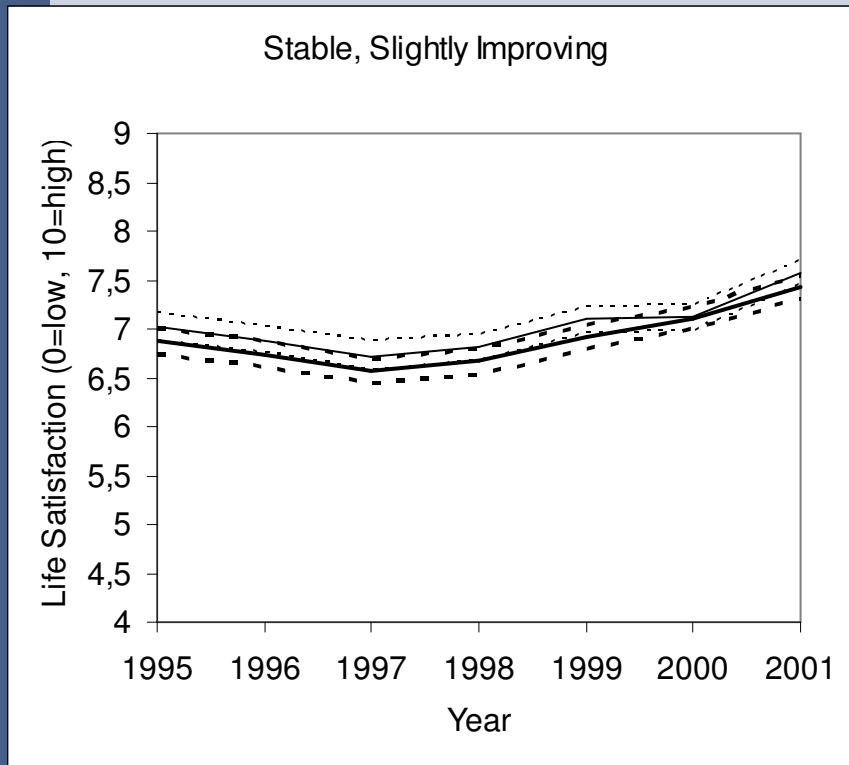
2672 with full info on life satisfaction (158 missing values)

2603 with full info on life satisfaction & disability (227 missing values)



Survivors Aged 50+ Germany 1995-2001

Trajectories of Life Satisfaction - Stable

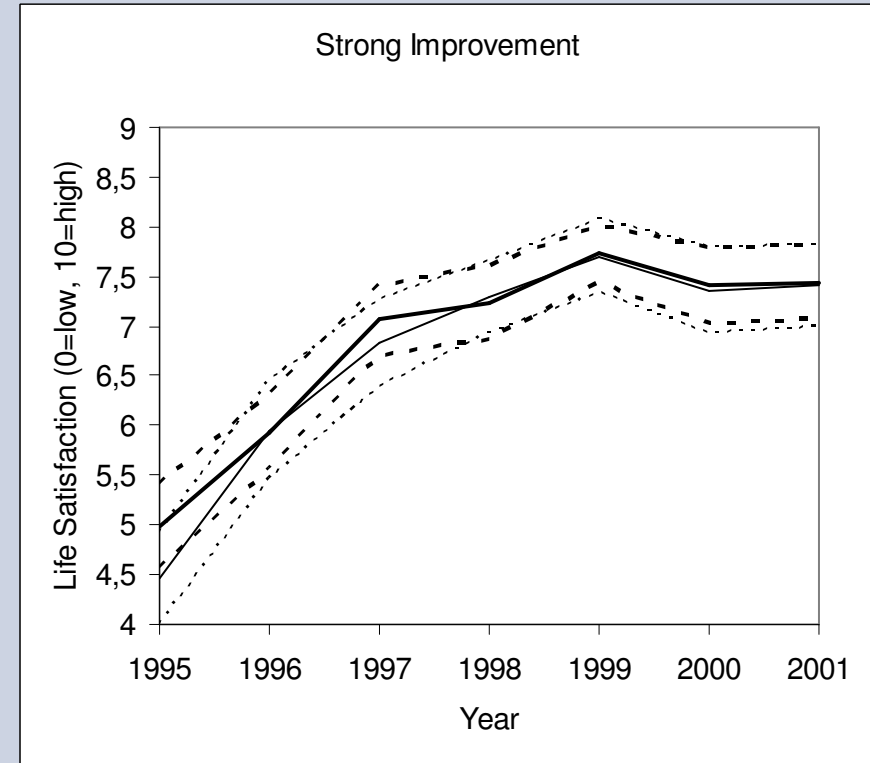
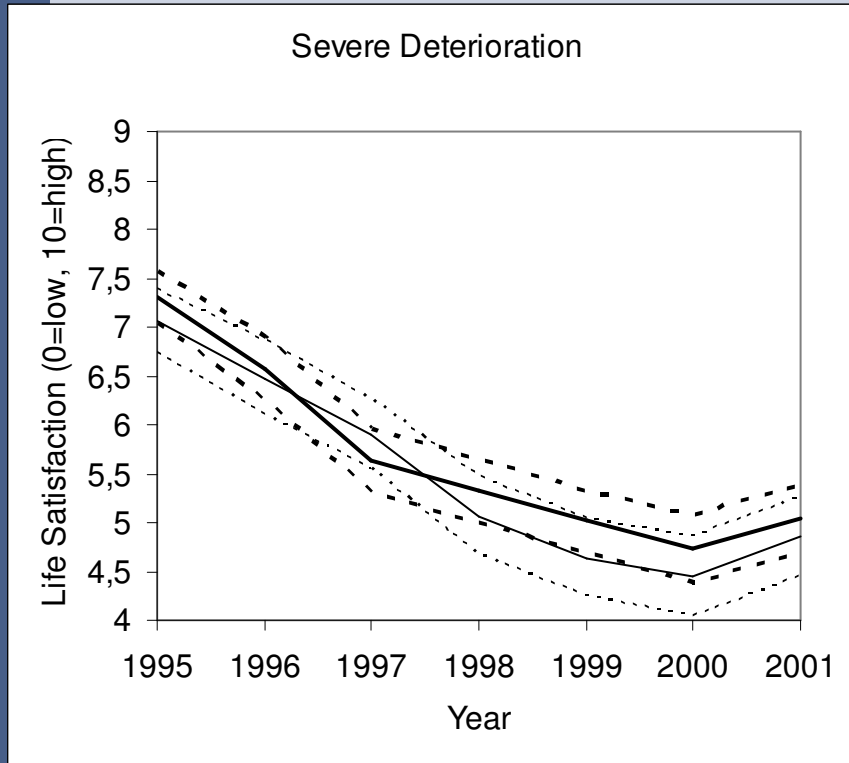


— Average males
— Average females
- - - 95% CI



Survivors Aged 50+ Germany 1995-2001

Trajectories of Life Satisfaction - Changing

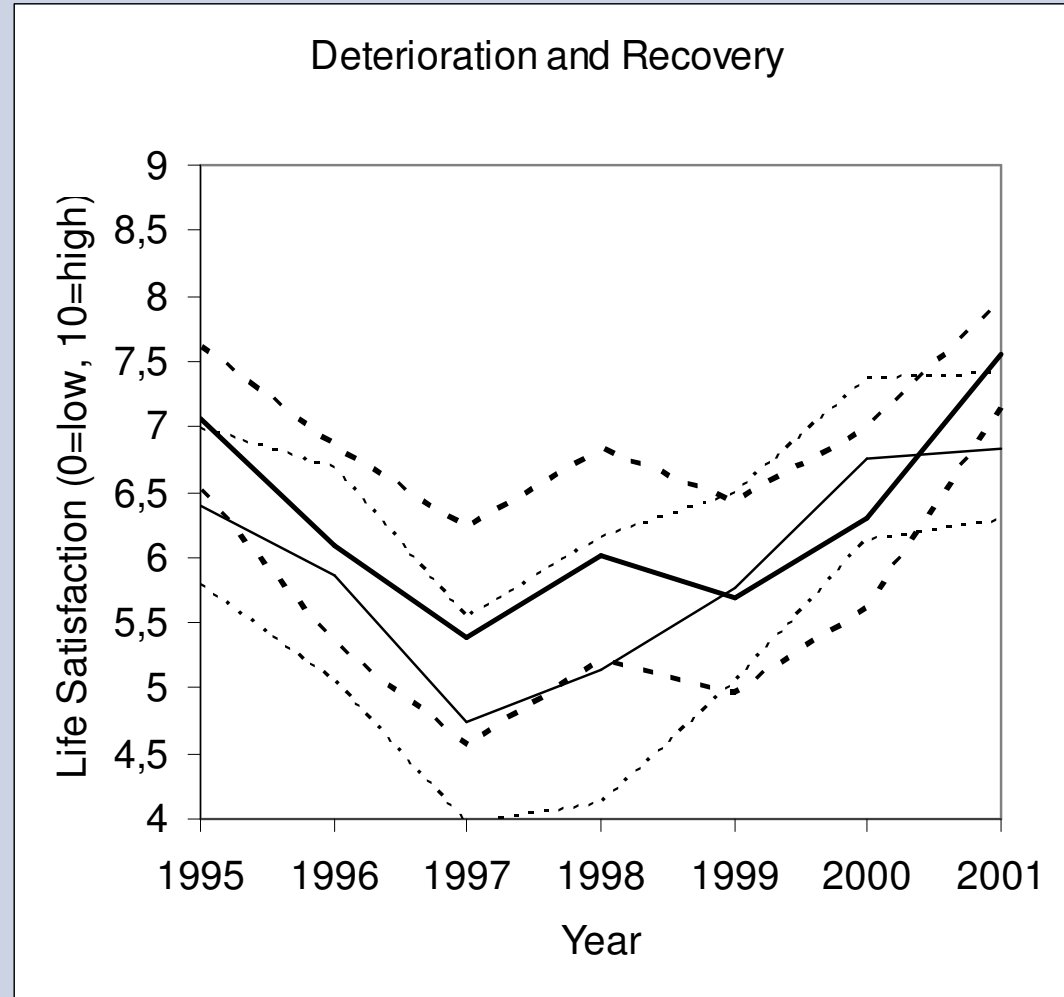


- Average males
- Average females
- - - 95% CI



Survivors Aged 50+ Germany 1995-2001

Trajectories of Life Satisfaction - Changing



- Average males
- Average females
- - - 95% CI



Survivors Aged 50+ Germany 1995-2001

Distribution of Trajectories of Life Satisfaction by Sex

Percent Trajectories	Males			Females		
	Average	LCI	UCI	Average	LCI	UCI
Stable, slightly improving	46	43	50	44	41	47
Stable, slightly deteriorating	33	30	36	35	32	39
Severe Deterioration	10	7	12	9	7	12
Strong Improvement	6	4	7	7	5	9
Deterioration and Recovery	5	3	8	4	2	5



Survivors Aged 50+ Germany 1995-2001

Distribution of Trajectories of Life Satisfaction by Baseline Age

Percentage

Trajectory	Age			Total
	50-59	60-69	70+	
Deterioration and Recovery	4	4	3	4
Stable, slightly improving	49	46	36	46
Stable, slightly deteriorating	32	36	42	35
Severe Deterioration	8	8	14	9
Strong Improvement	7	5	5	6

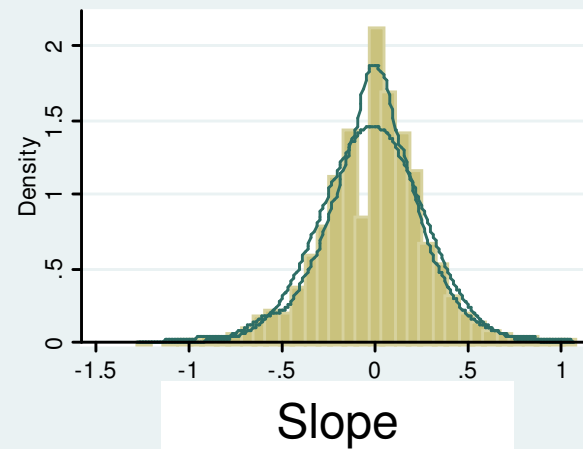
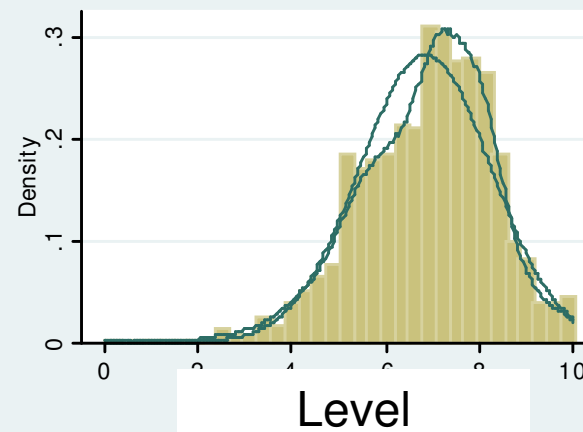
Chi2 Test: $p=0,000$



Survivors Aged 50+ Germany 1995-2001

Histogram

Dependent Variable: Life Satisfaction

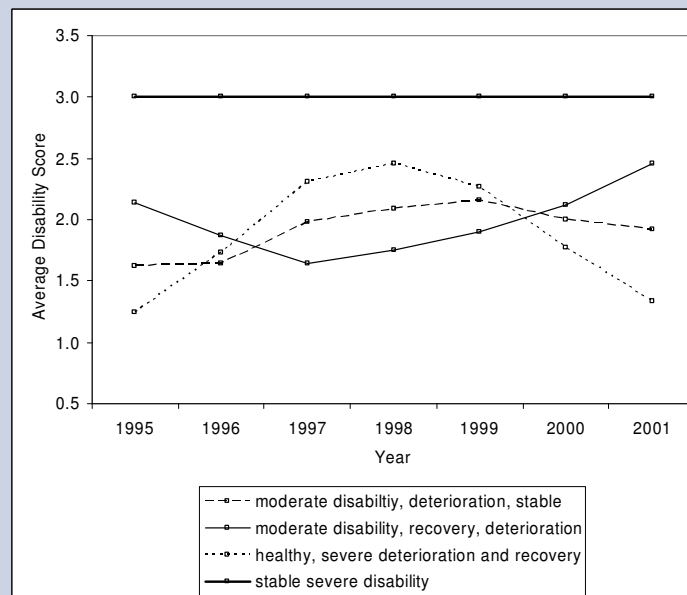
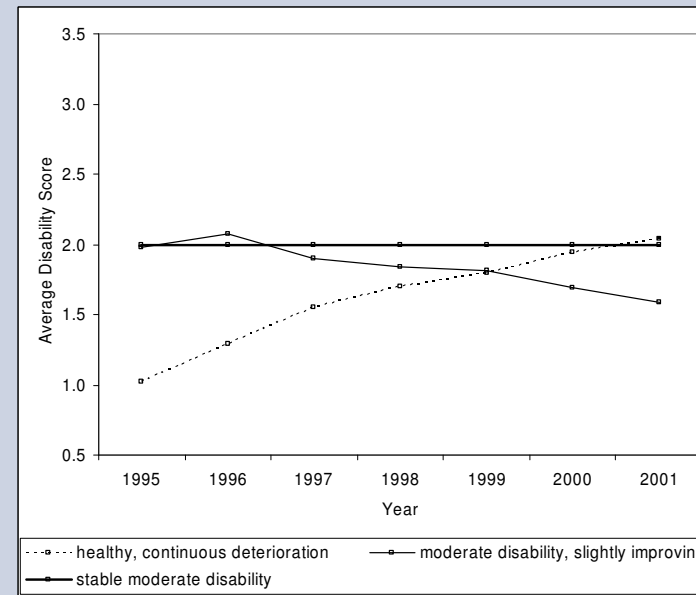
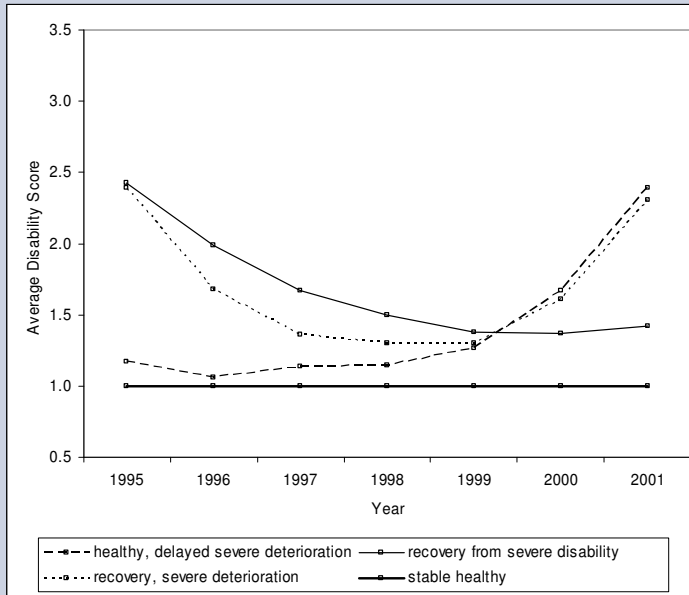


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Survivors Aged 50+ Germany 1995-2001

Disability Trajectories

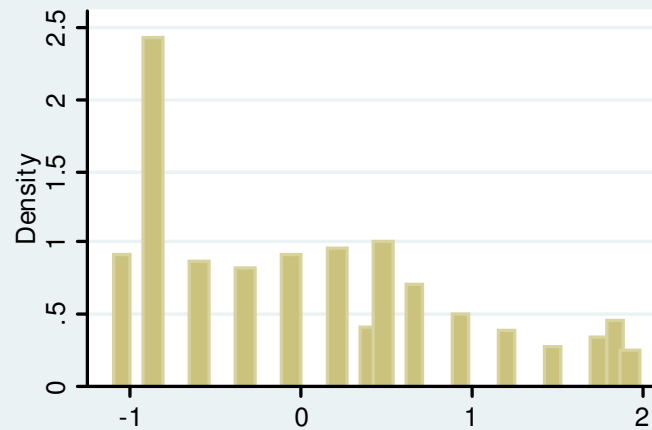




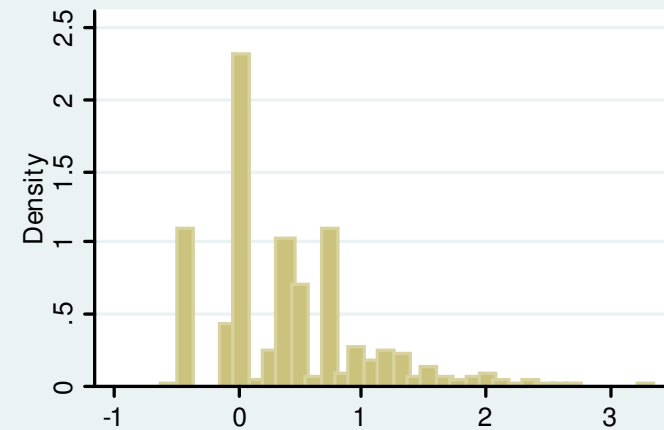
Survivors Aged 50+ Germany 1995-2001

Histogram

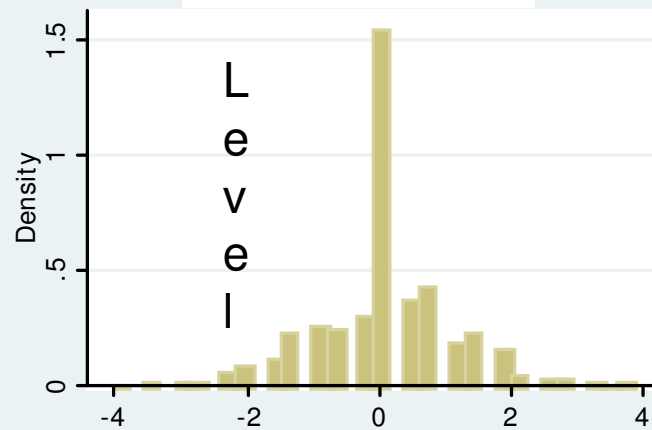
Independent Variable Disability Trajectory



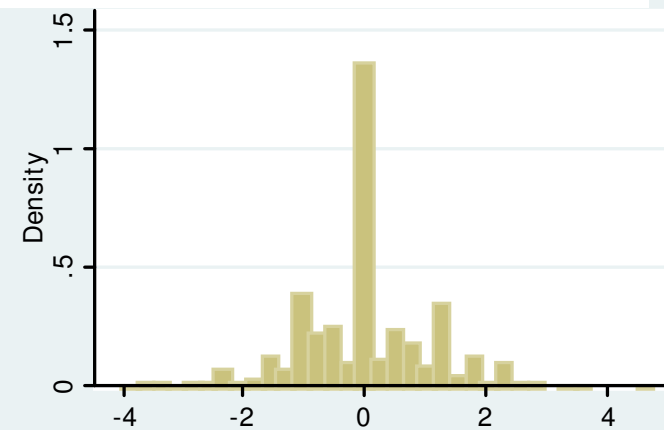
Level



Root Mean Square Error



Slope



Concavity/Convexity



Linear Regression: Level of Life Satisfaction

+ Increase in Life Satisfaction (0=low, 10=high)
 - Decrease in Life Satisfaction

LEVEL (measured in 1998)	Both Sexes R ² =0.26		Females R ² =0.25	
Variable	Effect	Standardized Beta	Effect	Standardized Beta
Females				
East Germany	-	-0,19	-	-0,18
60-69	+	0,12	+	0,08
70-79	+	0,15	+	0,13
80+	+	0,07	+	0,07
High Education				
Partner died 1995-1997				
Partner died 1998-1999	-	-0,04		
Partner died 2000-2001	-	-0,04	-	-0,05
Parity 1-2				
Parit 3+			-	-0,07
Income decreased 1995-1997				
Income decreased 1998-1999				
Income decreased 2000-2001				
	-	-0,04		
Level of Disability				
	-	-0,46	-	-0,46
Slope of Disability				
Variability of Disability				
			+	0,05
Concavity/Convexity of Disability				



Linear Regression: Slope of Life Satisfaction

+ Increasing Life Satisfaction (0=low, 10=high)
 - Decreasing Life Satisfaction

Slope of Disability	Both Sexes R ² =0.12		Females R ² =0.14	
Variable	Effect	Standar- dized Beta	Effect	Standar- dized Beta
Females				
East Germany	+	0,06	+	0,05
60-69	-	-0,06		
70-79	-	-0,10	-	-0,07
80+	-	-0,06	+	-0,07
High Education				
Partner died 1995-1997	+	0,09	+	0,07
Partner died 1998-1999	-	-0,05		
Partner died 2000-2001	-	-0,11	-	-0,09
Parity 1-2			+	0,08
Parit 3+				
Income decreased 1995-1997				
Income decreased 1998-1999				
Income decreased 2000-2001	-	-0,03		
Level of Disability	-	-0,08	-	-0,08
Slope of Disability	-	-0,25	-	-0,28
Variability of Disability				
Concavity/Convexity of Disability				



Conclusions: General Tendencies

- There is no **Age Paradox** in life satisfaction: negative trajectories of life satisfaction become more frequent with age
- However, corrected for disability and loss of partner the level of life satisfaction seems to increase with age while the slope decreases.
- The two most frequent trajectories of life satisfaction among seven-year survivors are **stable, slightly deteriorating** and **stable, slightly improving**.
- There is a tendency that females have lower life satisfaction but the difference is statistically not significant.



Conclusions: Determinants

- The main determinant of the level of life satisfaction is the level of disability, followed by age, and East/West Germany.
- The main determinants of the slope of life satisfaction are the slope of disability, the death of a partner, and age.
- Among females the number of children increases the slope of life satisfaction but decreases the level.
- Changes in income have negative but marginal effects.



Future Research

- Model the interplay between life satisfaction and disability as a Linear Growth Model

Level 1: repeated observation model $Y_{ti} = \pi_{0i} + \pi_{1i}a_{ti} + e_{ti}$

Level 2: person-level model $\pi_{0i} = \beta_{00} + \sum_{q=1}^{Q_0} \beta_{0q} X_{qi} + r_{0i}$

$$\pi_{1i} = \beta_{10} + \sum_{q=1}^{Q_1} \beta_{1q} X_{qi} + r_{1i}$$

- Include attrition and death in the model