
Direct Measures of Capabilities

Exploring the Dimensionality of Direct Capability Measures
using data of the GeNECA-Modul from SOEP-IS 2012

Niels Michalski

Kontakt: michalsn@sowi-hu-berlin.de

Questions?

Do the Direct Measures discriminate?

Can underlying dimensions be identified?

How are the underlying dimensions associated?

Does the proposed measurement model fit the data well (SDT) ?

Opportunities, Constraints, Freedoms:

- Explorative Factor Analysis (EFA)
 - Iterated Principal Components resp. Principal Component Factor (Domain Satisfaction)
 - Oblique Rotation (promax)

Self Determination Theory (SDT):

- Confirmatory Factor Analysis (CFA)

Direct Measures - Opportunities

	F1	F2	h ²
Own Income		0.86	0.64
Familiar/social contacts	0.44		0.35
Educate oneself		0.62	0.54
Safe neighborhood	0.60		0.47
Healthy life	0.58		0.50
Behave ecoconscious	0.82		0.56
Freely practice religion	0.64		0.34
Appropriate apartment	0.45		0.33
Opportunities Overall		0.66	0.45
$\sum r^2_{FXi}$	3.12	2.82	4.18
Proportion of Common Variance	0.75	0.67	
Proportion of Total Variance	0.35	0.31	
Iterated Principal Factors; N=1054; blanks represent abs(loading) <.25);			
Oblique Rotation Promax (k=3); rF1,F2 = .62			

Direct Measures - Constraints

	F1	F2	h ²
Age		0.76	0.55
Familial responsibility	0.27		0.16
State of health		0.67	0.46
Money	0.56		0.28
Neighborhood Security	0.59		0.36
Mobilty	0.54		0.32
Level of education	0.65		0.41
Discrimination	0.55		0.29
Σr^2_{FXi}	1.95	1.41	2.83
Proportion of Common Variance	0.69	0.50	
Proportion of Total Variance	0.24	0.18	

Iterated Principal Factors; N=1063; blanks represent abs(loading) <.25);
 Oblique Rotation Promax (k=3); $r_{F1,F2} = .43$

Direct Measures - Freedoms

	F1	F2	h ²
Mind	0.88		0.65
Political Activities	0.45		0.39
Own idea of good life		0.53	0.33
Respect and Benevolence		0.79	0.51
Religion	0.36	0.34	0.41
$\sum r^2_{FXi}$	1.66	1.64	2.26
Proportion of Common Variance	0.74	0.73	
Proportion of Total Variance	0.33	0.33	

Iterated Principal Factors; N=1073; blanks represent abs(loading) <.25);

Oblique Rotation Promax (k=3); $r_{F1,F2} = .66$

Do the Direct Measures discriminate?

	F1	F2	F3	h ²
Own Income	0.65			0.46
Familiar/social contacts	0.55			0.34
Educate oneself	0.68			0.48
Safe neighborhood	0.67			0.46
Healthy life	0.72			0.49
Behave ecoconscious	0.54			0.40
Freely practice religion	0.28	0.56		0.49
Appropriate apartment	0.54			0.35
Opportunities Overall	0.54			0.37
Age			0.48	0.20
Familial responsibility			0.39	0.17
State of health			0.46	0.20
Money	-0.31		0.39	0.31
Neighborhood Security			0.57	0.34
Mobilty			0.53	0.32
Level of education			0.59	0.37
Discrimination			0.45	0.24
Mind		0.55		0.35
Political Activities		0.61		0.35
Own idea of good life		0.45		0.27
Respect and Benevolence		0.56		0.31
Religion		0.80		0.59
Σr^2_{FXi}	4.45	3.25	3.04	7.87
Proportion of Common Variance	0.57	0.41	0.39	
Proportion of Total Variance	0.20	0.15	0.14	

Iterated Principal Factors; N=973; blanks represent abs(loading) <.25);

Oblique Rotation Promax (k=3); $r_{F1,F2} = .45$; $r_{F1,F3} = -.45$; $r_{F2,F3} = -.25$

Direct Measures and Domain Satisfactions

	F1	F2	F3	F4	F5	F6	h ²
Own Income	0.32		0.72				0.68
Familiar/social contacts	0.63						0.45
Educate oneself	0.60		0.36				0.55
Safe neighborhood	0.75						0.57
Healthy life	0.73						0.57
Behave ecoconscious	0.71						0.55
Freely practice religion	0.46					0.46	0.53
Appropriate apartment	0.60						0.44
Opportunities Overall	0.33		0.38		0.25		0.49
Age				0.26	-0.68		0.51
Familial responsibility			0.28	0.51			0.35
State of health					-0.87		0.70
Money			-0.55	0.33			0.51
Neighborhood Security				0.74			0.55
Mobility				0.65			0.49
Level of education				0.65			0.50
Discrimination				0.57			0.37
Mind						0.71	0.54
Political Activities						0.78	0.56
Own idea of good life						0.54	0.37
Respect and Benevolence						0.60	0.41
Religion						0.74	0.59
Sat with health					0.75		0.71
Sat with sleep					0.52		0.40
Sat with HH-income			0.85				0.77
Sat with personal income			0.89				0.75
Sat with dwelling		0.48					0.34
Sat with leasure time		0.58					0.38
Sat with family life		0.59					0.48
General life Sat		0.48					0.40
Sat with friends		0.58					0.36
Sat with Envirprotect		0.60					0.32
Sat with person educ							0.22
Sat with neighbour sec		0.54					0.37
Sat with Mobility		0.26		-0.34			0.33
Sat with social peace		0.67					0.44
Sat with personal freedoms		0.65					0.53
General life satisfaction		0.34	0.32				0.50
$\sum R^2_{FXi}$	5.81	5.64	5.41	3.97	3.75	3.56	18.59
Proportion of Common Variance	0.31	0.30	0.29	0.21	0.20	0.19	
Proportion of Total Variance	0.15	0.15	0.14	0.10	0.10	0.09	

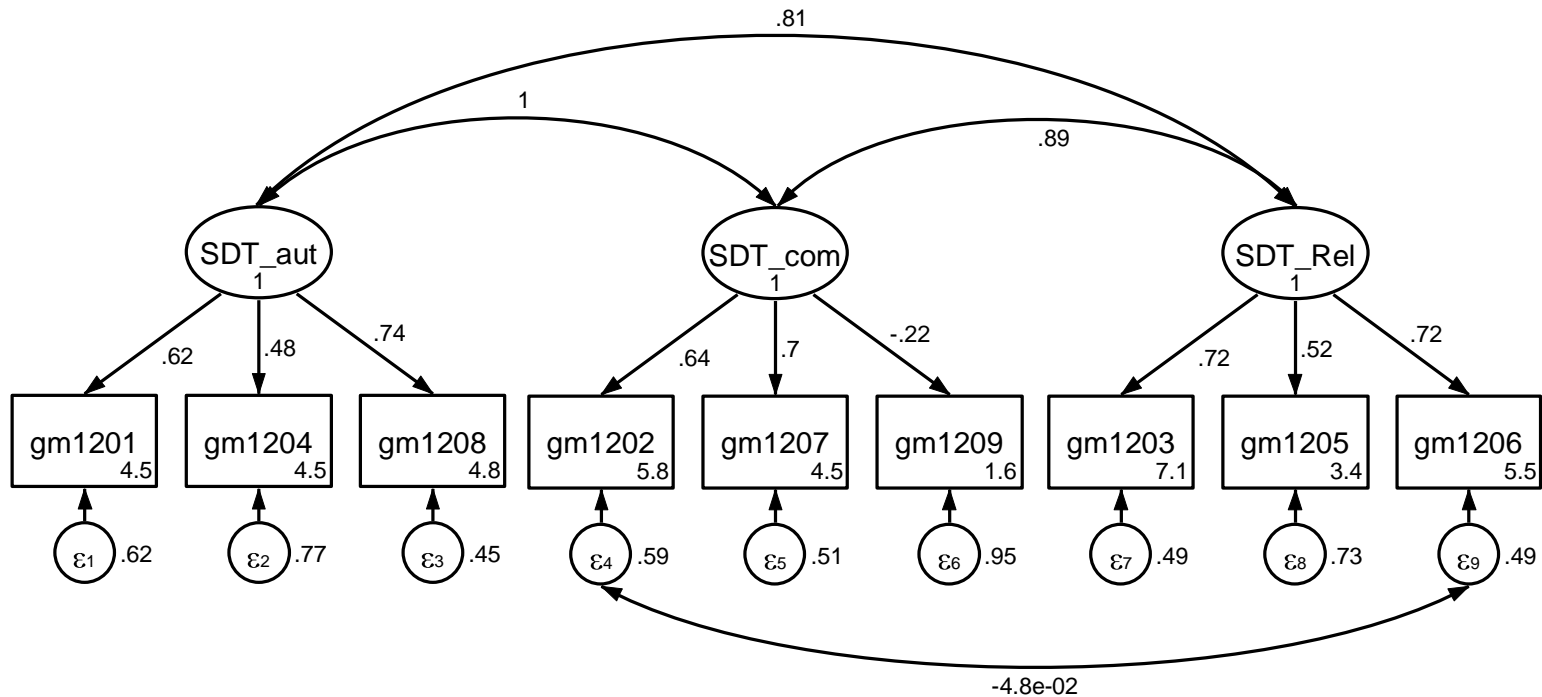
Principal Component Factors; N=871; blanks represent abs(loading) <.25);
Oblique Rotation Promax (k=3)

Factor Correlations

Factor Correlations

Factors	Opportunities	Domain Satisfactions	Economic Resources	Constraints	Health	Freedoms
Opportunities	1					
Domain Satisfactions	0.3688	1				
Economic Resources	0.3594	0.4426	1			
Constraints	-0.348	-0.2421	-0.286	1		
Health	0.2509	0.32	0.3289	-0.2552	1	
Freedoms	0.3475	0.1344	0.09736	-0.2072	0.05098	1

Self Determination Theory (SDT)



SRMR	CFI	TLI	RMSEA	Chi ²	df
0.034	0.954	0.928	0.069	140.579	23

Summary (1)

The direct Measures of Capabilities identify different concepts. All are related to Quality of Life Measures.

The Opportunity Measures have at least two underlying dimensions, an SES related and an ideational factor. The general opportunity item loads on the SES factor!

The Constraint Measures can be summarized to a health related factor and a general constraint factor.

Among the highly correlated Freedom Measures an agency factor can be separated from general freedoms of mind, to be politically active and practice religion.

Summary (2)

The measurement model for the Self Determination Theory Modell could not be replicated. Facets do not discriminate. Correlations between the proposed factors are too high. However, latent variables based on factors derived from separated measurement models for the facets are legitimate.

General Indicators (life satisfaction, overall opportunities) load on their respective stimulus group and also on the socio economic status factor.