

Multi-Dimensional Wellbeing

A full, direct operationalisation and extension of Sen's capability approach to welfare economics

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Structure

- Motivation – From Utilitarianism to Capabilities Theory
 - Full and direct Operationalisation for US and UK for the assessment of progress
 - Wellbeing over the life course
 - Development and happiness in two year olds
 - Wellbeing over 50
 - Further Applications
 - Personal and spatial nature of Multi-dimensional Deprivation
 - Domestic Violence
 - Social resources, the ability to plan and its value
 - Measurement of health
- Concluding Remarks

Four Readings

- Sen (1985) Commodities and Capabilities, OUP
- Anand Hunter Dowding Guala and van Hees M (2009) The Development of Capability Indicators, JHumDevCap
- Anand Krishnakumar and Tran (2011), Measuring Welfare, JPubEcon
- Anand Roope Gray and Cattan (2014) Multi-dimensional Wellbeing for the Assessment of Progress, Discussion Paper

National Income Accounting

William
Petty

1600s



Richard
Stone

1930s
on



Environ-
mental
Criticisms
of GDP

1970s



Social
Indicators
Movement

1980s on



Amartya
Sen
Capabilities
and
HDI

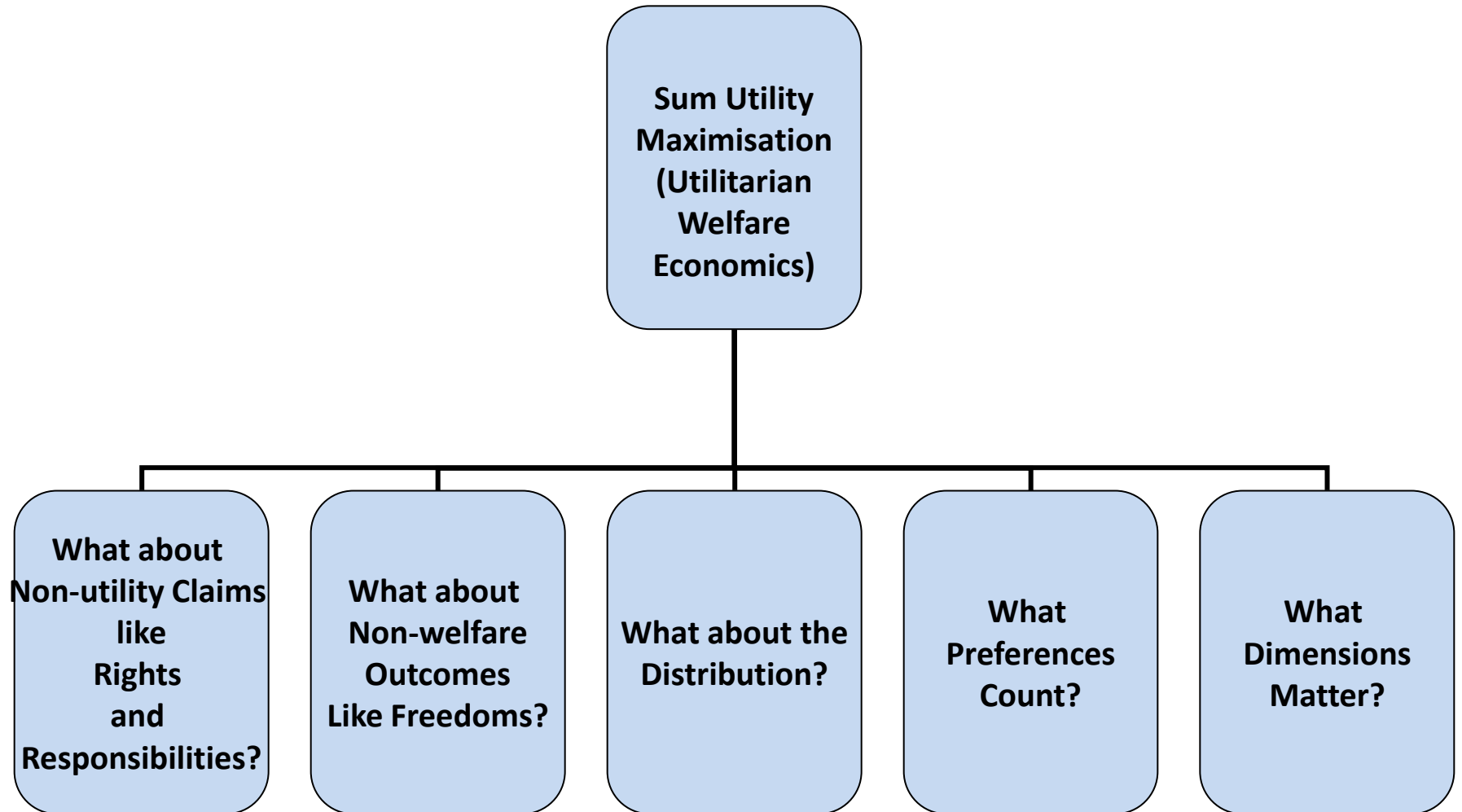
1985/90-



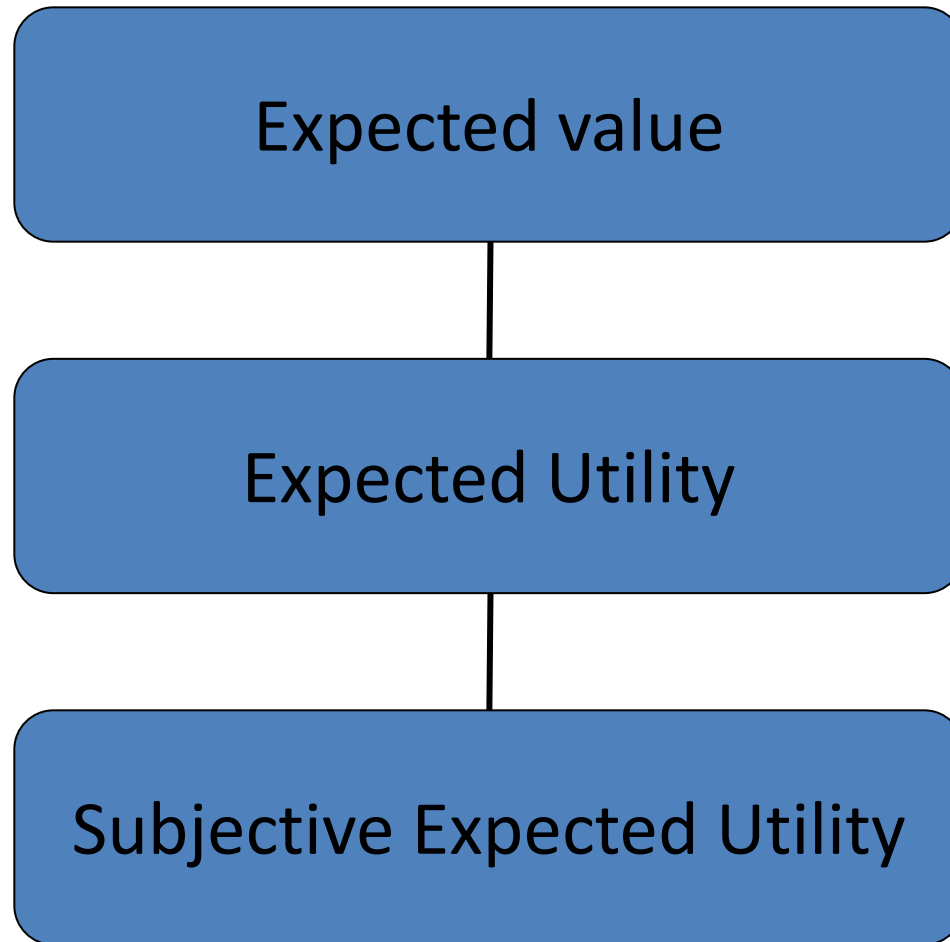
Table 1: Selected Comprehensive Wellbeing Surveys and Headline Domains

UN Human Development Index (annual from 1990)	OCAP 2005 Survey	Gross National Happiness Survey 2010	Better Life Index OECD 2011	International Wellbeing Indicator Set 2012	ONS Wheel Measuring What Matters 2013	EU Quality of Life Indicators (current)
LIFE EXPECTANCY	LIFE	PSYCHOLOGICAL WELLBEING	HOUSING	HOME	PERSONAL WELLBEING	HEALTH
YEARS OF SCHOOLING	BODILY HEALTH	HEALTH	INCOME	WORK	OUR RELATIONSHIPS	EMPLOYMENT
INCOME PER HEAD	BODILY INTEGRITY	EDUCATION	JOBS	ENVIRONMENT	HEALTH	INCOME DEPRIVATION
	SENSES IMAGINATION AND THOUGHT	CULTURE	COMMUNITY	COMMUNITY	WHAT WE DO	EDUCATION
	EMOTION	TIME USE	EDUCATION	ACCESS TO SERVICES	WHERE WE LIVE	FAMILY
	PRACTICAL REASON	GOOD GOVERNANCE	ENVIRONMENT	HEALTH	PERSONAL FINANCE	SOCIAL PARTICIPATION
	AFFILIATION	COMMUNITY VITALITY	CMIC ENGAGEMENT	LIFE SATISFACTION	EDUCATION AND SKILLS	HOUSING
	OTHER SPECIES	ECOLOGICAL DIVERSITY AND RESILIANCE	HEALTH	EDUCATION SOFT SKILLS & RESOURCES	ECONOMY	ENVIRONMENT
	PLAY	LIVING STANDARDS	LIFE SATISFACTION		GOVERNANCE	TRANSPORT
	CONTROL OVER ENVIRONMENT		SAFETY	ACTIVITY INVOLVEMENT YESTERDAY	NATURAL ENVIRONMENT	SAFETY
	(A) POLITICAL					
	(B) MATERIAL		WORK-LIFE BALANCE			LEISURE
						LIFE SATISFACTION

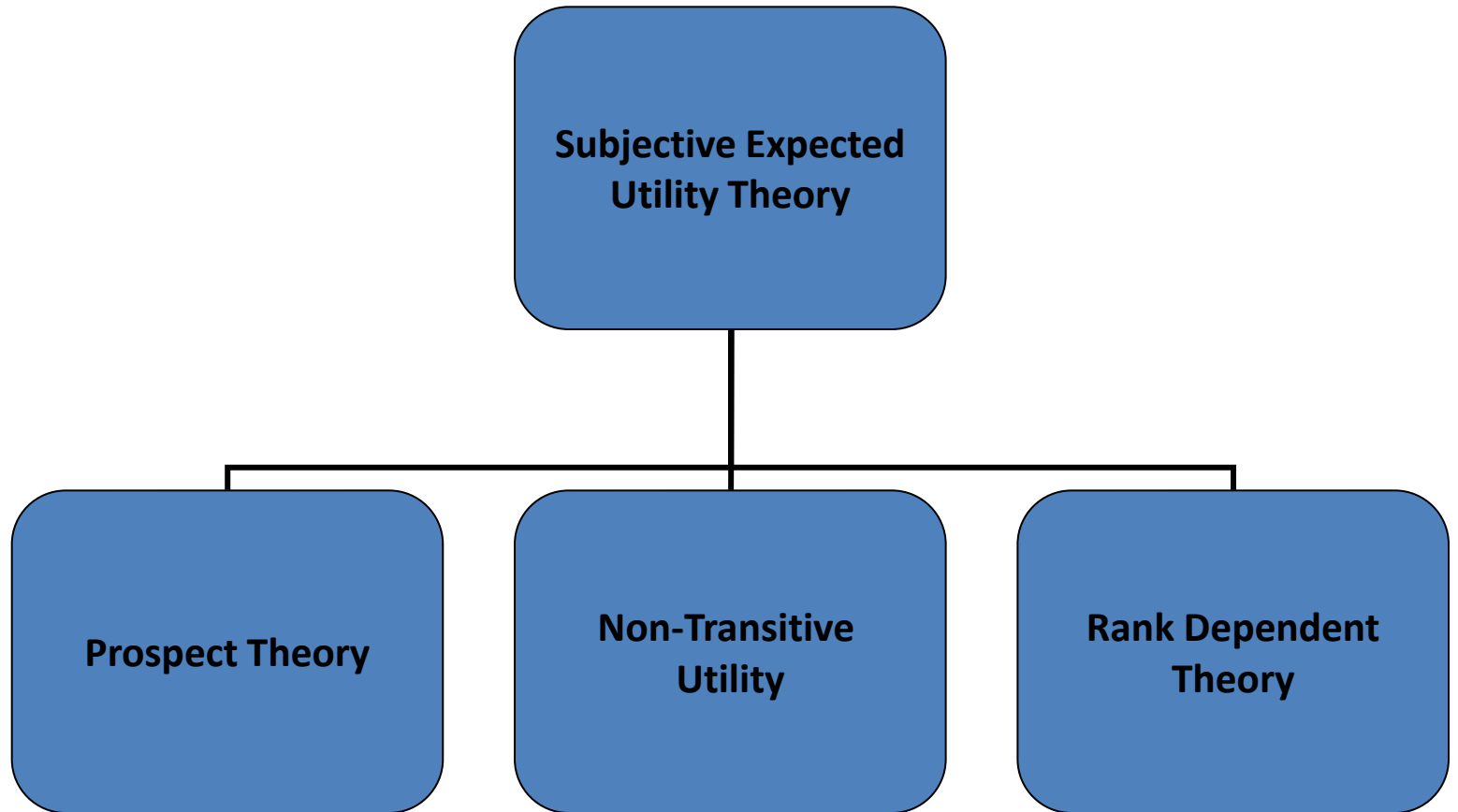
Modern Social Choice and Welfare Theory



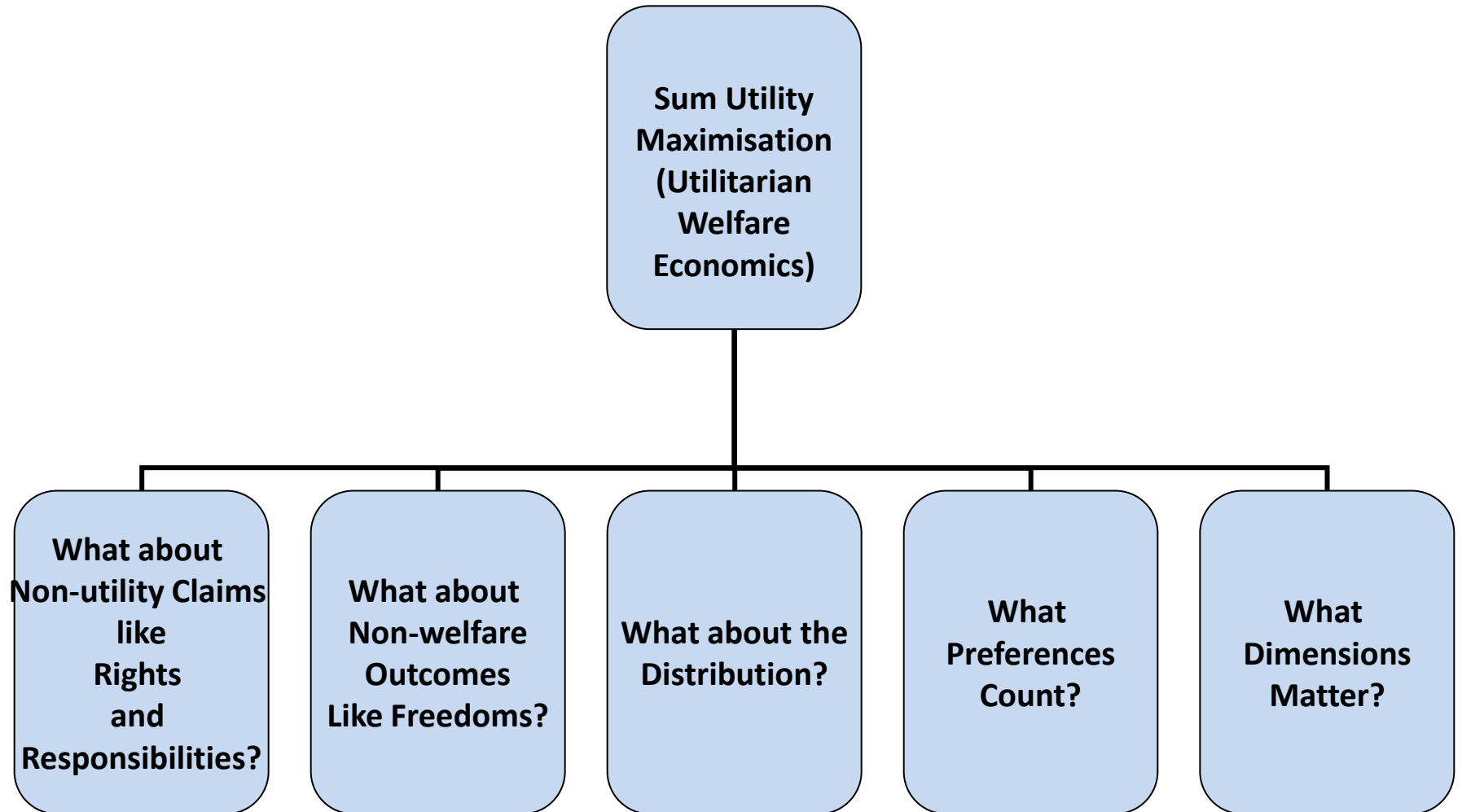
Classical Decision Theory



Modern Decision Theory



Modern Social Choice and Welfare Theory



Capabilities Theory

- $\text{Activities} = f(\text{Resources}, \text{Abilities})$
- $\text{Happiness} = u(\text{Activities})$
- $\text{Capabilities} = h(\text{Resources}, \text{Abilities})$

THEORY

$$f = f(r, c)$$

$$u = u(f)$$

$$Q \square \{ f \} | r, c = q(r, c)$$

Pattanaik and Xu (1990)

Ahlert (1993)

Derivation of the Wellbeing Space

- Personal suggestions
- Examples from Household Surveys
- Nussbaum's (2000) List
- Focus Group Work (Glasgow/Public Health)
- Public Consultation (UK, 30,000)
- Comparison with Official Approaches (OECD, EU)

Framework for Questions

The OCAP Survey

Nussbaum's List

Comprehensive

Robust (similar to others)

Don't require universal claims

Has normative grounding

Question Categories

- Life
- Bodily Health
- Bodily Integrity
- Senses Imagination and Thought
- Emotions
- Practical Reason
- Affiliation
- Nature
- Leisure
- Control over one's Environment

Bodily Health

- Being able to have good health, including reproductive health; to be adequately nourished; to have adequate shelter

- 2 Bodily Health
- ***Being able to have good health,***
- **BHEALTH (Q57)**
- **Does your health in any way limit your daily activities compared to most people of your age?**
- **Yes, No. BHPS**
- ***including reproductive health;***
- **BREPRODUCT (Q61)**
- **Are you able to have children?**
- Yes, No, Don't know, Prefer not to answer
- If No
- **Please indicate the reason(s) you are not able to have children.**
- I cannot have children because of: Q62_1 My age; Q62_2 I have had a vasectomy / hysterectomy; Q62-3 Another medical condition; Q62_4 My partner being unable / unwilling; Q62_5 Another reason; Q62_6 Prefer not to answer.
- ***to be adequately nourished***
- **BNOURISH (Q59)**
- **Do you eat fresh meat, chicken or fish at least twice a week?**
- Yes/No **BHPS**
- **If No**
- **Q60**
- **For which of the following reasons, if any, do you NOT eat fresh meat, chicken or fish at least twice a week? [Please tick all that apply]**
- I am vegetarian/vegan, I cannot afford to, I do not like eating fresh meat, chicken or fish that often, I do not have time to prepare fresh food., Some other reason
- ***to have adequate shelter.***
- **BSHELTER (Q85)**
- **Is your current accommodation adequate or inadequate for your current needs?**
- More than adequate, Adequate, Inadequate, Very inadequate
- **BCANMOVE (Q86)**
- **Are you prevented from moving home for any reason?**
- Yes, No
- **If yes**
- **Q87**
- **What prevents you from moving home?**
- Lack of money/finances; The Council would be unlikely to re-house me; Family responsibilities and/or schooling; I could not move out of my current accommodation because of some other reason

HEALTH STATUS

Does your health in any way *limit your daily activities* compared to most people of your age?

Yes, No. **BHPS**

REPRODUCTION

Are you able to have children? NEW

Yes, No, Don't know, Prefer not to answer

If no please indicate the reason(s) you are not able to have children

I cannot have children because of:

Q62_1 My age

Q62_2 I have had a vasectomy / hysterectomy

Q62_3 Another medical condition

Q62_4 My partner being unable / unwilling

Q62_5 Another reason

Q62_6 Prefer not to answer

NOURISHMENT

Do you eat fresh meat, chicken or fish at least twice a week?

Yes/No **BHPS with additions**

If No

(Q60)

For which of the following reasons, if any, do you NOT eat fresh meat, chicken or fish at least twice a week? [Please tick all that apply]

I am vegetarian/vegan

I cannot afford to

I do not like eating fresh meat, chicken or fish that often

I do not have time to prepare fresh food

Some other reason

ADEQUATE SHELTER

BSHELTER (Q85)

Is your current accommodation adequate or inadequate for your current needs?

More than adequate, Adequate, Inadequate, Very inadequate

BCANMOVE (Q86)

Are you prevented from moving home for any reason?

Yes, No

If yes (Q87)

What prevents you from moving home?

Lack of money/finances;

The Council would be unlikely to re-house me;

Family responsibilities and/or schooling;

I could not move out of my current accommodation because of some other reason

5 Types of Capability Indicators

Type 1. Opportunities

Type 2. Abilities

Type 3. Constraints

Type 4. Functionings + Reasons

Type 5. Functionings + Universality

Derivation of our Wellbeing Space

- Personal suggestions
- Examples from Household Surveys
- Nussbaum's (2000) List
- Focus Group Work (Glasgow/Public Health)
- Public Consultation (UK, 30,000)
- Comparison with Official Approaches (OECD, EU)

CAPABILITY INDICATORS

- h. I am able to share tasks within the household fairly
 - h. I am able to socialise with others in my family as I would wish
 - h. I am able to make ends meet
 - h. I am able to achieve a good work-life balance
 - h. I am able to enjoy the kinds of personal relationships that I want
 - h. I have good opportunities to feel valued and loved
 - w. I am able to find work when I need to
 - w. I am able to use my talents and skills at work
 - w. I am able to work under a good manager at the moment
 - w. I am always treated as an equal (and not discriminated against) by people at work
 - w. I have good opportunities for promotion or recognition at work
 - w. I have good opportunities to socialise at work
 - c. I have good opportunities to take part in local social events
 - c. I am treated by people where I live as an equal (and not discriminated against)
 - c. I am able to practice my religious beliefs (including atheism/agnosticism)
 - c. I am able to express my political views when I wish
 - c. I am able to walk in my local neighbourhood safely at night
 - e. I am able to visit parks or countryside whenever I want
 - e. I am able to work in an environment that has little pollution from cars or other sources
 - e. I am able to keep a pet or animals at home with ease if I so wish
 - e. I am able to places I need without difficulty
- When needed I find it easy to
- a. Make use of banking and personal finance services
 - a. Get my rubbish cleared away
 - a. Get tradespeople or the landlord to help fix problems in the house
 - a. Be treated by a doctor or nurse
 - a. Get help from the police
 - a. Get help from a lawyer
 - a. Get to a range of shops

Daily Activities

Attending an Evening Class

Caring for someone ill or frail (unpaid)

Community involvement

Cooking

DIY

Drinking alcohol

Exercising

Housework

Internet (for personal use)

Internet (for paid employment)

Intimate Relations

Listening to music

Looking after a pet

Other outdoor activities

Paid employment

Playing a musical instrument

Praying or meditating

Relaxing or napping

Reading for pleasure

Self-care

Smoking tobacco

Socialising

Shopping

Time with children

Visting a park or the countryside

Visiting a cinema/concert/gallery/museum

Four Measures of Experience

- Overall how satisfied are you with your life nowadays?
- Overall how happy did you feel yesterday?
- Overall how anxious did you feel yesterday?
- Overall to what extent do you feel that the things you do in your life are worthwhile?

Social resources and non-cognitive skills

Social Capital

People in this area...

Are helpful

Get along

Treat each other fairly

Would help if someone in the family were ill

Engage in community volunteering

Trust local government officials

Individual Social Capital

I can strike up a conversation with most new people I meet

I can diffuse a difficult situation

I can provide leadership in a group

I can take guidance from a group leader

I can negotiate effectively

I can see things from other people's point of view

Soft Skills

I can plan for the future

I can keep to deadlines

I know what I like

I know my own strengths and weaknesses

I have a clear idea of how I want to spend the next five years

Additional skills

I am good at mathematical calculations

I am good with words

I am good with my hands

I am good at sports

Opportunities Autonomy and Decision-Making

I am able to plan my life as I would like to

I deal with problems well

I am happy with the opportunities I have to express myself

I find it easy to take exercise at least three times a week

Personality Big 5

Openness

Conscientiousness

Extraversion

Agreeableness

Neuroticism

Data

- 1000 adults US, UK and Italy (2012)
- 500 mobility impairment and UK 2nd wave (2013)

- 1000 adult capabilities UK (2005)

Example of Multi-dimensional Wellbeing Indicators for USA, UK and Italy

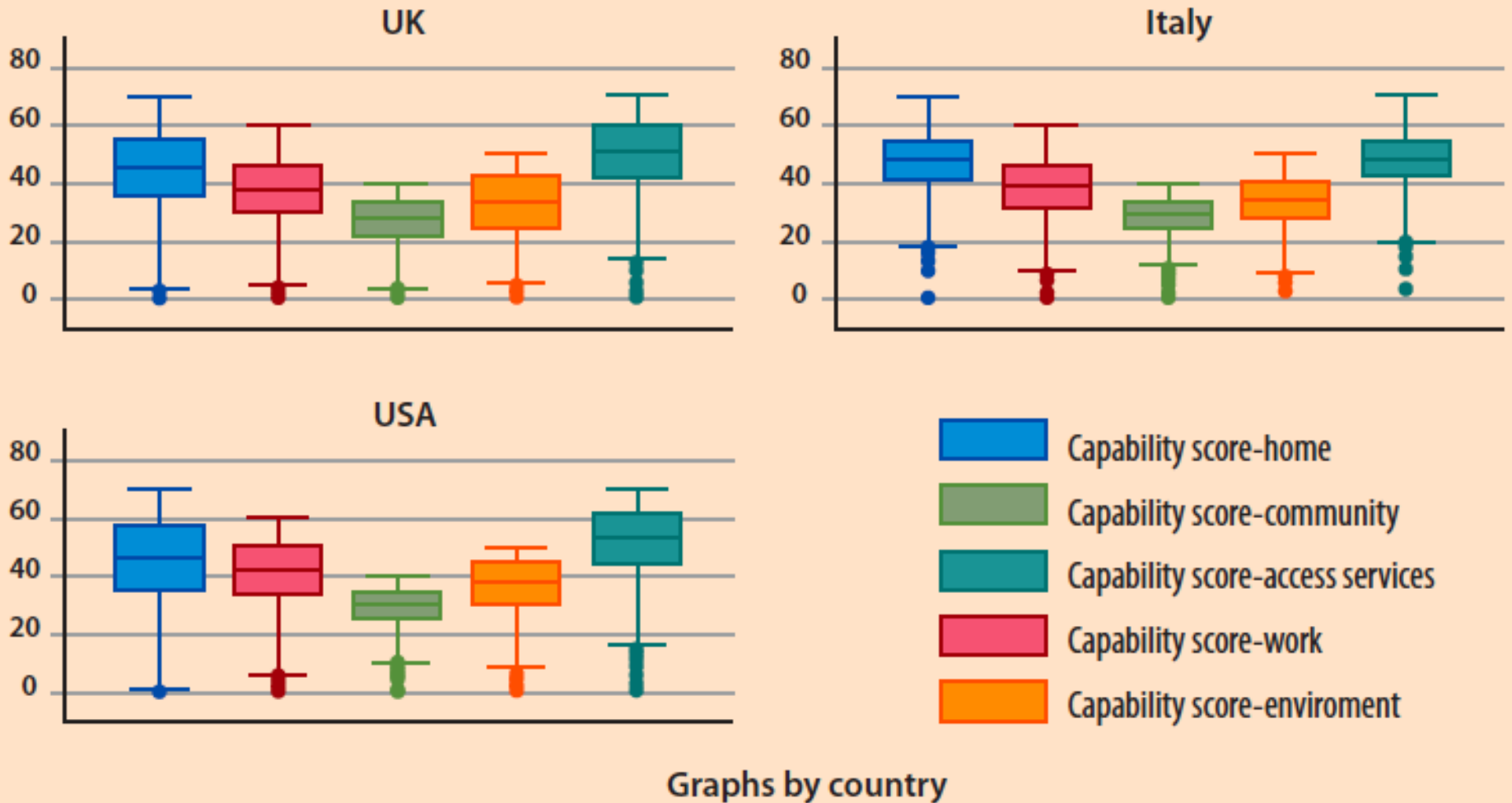


Table 1(a) First and Second Order Dominance Test Results: Whites compared with Non-Whites

k	USA Home		UK Home		USA Work		UK Work		USA Environment		UK Environment	
	$\Delta\bar{F}(k)$	$\Delta\bar{H}(k)$	$\Delta\bar{F}(k)$	$\Delta\bar{H}(k)$	$\Delta\bar{F}(k)$	$\Delta\bar{H}(k)$	$\Delta\bar{F}(k)$	$\Delta\bar{H}(k)$	$\Delta\bar{F}(k)$	$\Delta\bar{H}(k)$	$\Delta\bar{F}(k)$	$\Delta\bar{H}(k)$
0	-0.0761	-0.0761	-0.0068	-0.0068	-0.0554	-0.0554	-0.053	-0.053	-0.0681	-0.0681	-0.0437	-0.0437
1	-0.0833	-0.1594	-0.0811	-0.0879	-0.0524	-0.1078	-0.0582	-0.1112	-0.0945	-0.1626	-0.08	-0.1237
2	-0.0532	-0.2126	-0.0486	-0.1365	-0.0101	-0.1179	-0.0975	-0.2087	-0.1145	-0.2771	-0.1143	-0.238
3	-0.0289	-0.2415	-0.0748	-0.2113	0.0013	-0.1166	-0.1701	-0.3788	-0.0978	-0.3749	-0.1361	-0.3741
4	0.0004	-0.2411	-0.0973	-0.3086	0.0575	-0.0591	-0.1082	-0.487	-0.1185	-0.4934	-0.1923	-0.5664
5	0.0394	-0.2017	-0.1216	-0.4302	0.0485	-0.0106	-0.0438	-0.5308				
6	0.031	-0.1707	-0.0365	-0.4667								
7												
Test Result	NR	Whites SOSD	Whites FOSD	Whites SOSD	NR	Whites SOSD	Whites FOSD	Whites SOSD	Whites FOSD***	Whites SOSD***	Whites FOSD	Whites SOSD

Notes:

1. US: n=845 for whites & 214 for non-whites for Home and Environment; n=586 for whites & 137 for non-whites for Work. UK: n=1,599 for whites & 64 for non-whites for Home and Environment; n=1,177 for whites & 47 for non-whites for Work.

2. Here, and throughout the paper, *, ** and *** indicate statistical significance at 10%, 5% and 1% levels, respectively.

3. NR=inconclusive result, here and in Table 1(b).

Table 1(b) First and Second Order Dominance Test Results: Males compared with Females

k	USA Home		UK Home		USA Work		UK Work		USA Environment		UK Environment	
	$\Delta\bar{F}(k)$	$\Delta\bar{H}(k)$	$\Delta\bar{F}(k)$	$\Delta\bar{H}(k)$	$\Delta\bar{F}(k)$	$\Delta\bar{H}(k)$	$\Delta\bar{F}(k)$	$\Delta\bar{H}(k)$	$\Delta\bar{F}(k)$	$\Delta\bar{H}(k)$	$\Delta\bar{F}(k)$	$\Delta\bar{H}(k)$
0	-0.036	-0.036	0.0066	0.0066	-0.0163	-0.0163	0.0029	0.0029	-0.0284	-0.0284	0.008	0.008
1	-0.0437	-0.0797	-0.0067	-0.0001	-0.0413	-0.0576	-0.0061	-0.0032	-0.0511	-0.0795	-0.0064	0.0016
2	-0.0439	-0.1236	-0.001	-0.0011	-0.0428	-0.1004	-0.0008	-0.004	-0.0682	-0.1477	0.0003	0.0019
3	-0.0459	-0.1695	-0.0048	-0.0059	-0.048	-0.1484	0.0082	0.0042	-0.0665	-0.2142	-0.0227	-0.0208
4	-0.0574	-0.2269	0.0055	-0.0004	-0.0401	-0.1885	0.0294	0.0336	-0.099	-0.3132	-0.0057	-0.0265
5	-0.0557	-0.2826	-0.0091	-0.0095	-0.0503	-0.2388	0.0438	0.0774				
6	-0.0503	-0.3329	-0.0285	-0.038								
7												
Test Result	Males FOSD	Males SOSD**	NR	NR	Males FOSD	Males SOSD	NR	NR	Males FOSD*	Males SOSD*	NR	NR

Notes:

1. US: n=530 for males & 529 for females for Home and Environment; n=402 for males & 321 for females for Work. UK: n=846 for males & 843 for females for Home and Environment; n=656 for males & 587 for females for Work.

Table 2 Capabilities and Ordered Probit Models of LS

	USA			UK			USA		
	1	2	3	4	5	6	7	8	9
	Life Satisfaction						Anxiety Y		
Capabilities									
Home	0.309*** (0.027)		0.304*** (0.028)	0.301*** (0.018)		0.287*** (0.020)	-0.054** (0.024)		-0.042* (0.025)
Work	0.085*** (0.020)		0.074*** (0.021)	0.062*** (0.016)		0.019 (0.018)	0.003 (0.018)		0.007 (0.021)
Community	0.082* (0.043)		0.056 (0.045)	0.066** (0.029)		0.064** (0.031)	0.060 (0.039)		0.048 (0.041)
Environment	-0.023 (0.044)		-0.014 (0.044)	0.072*** (0.025)		0.061** (0.027)	-0.030 (0.043)		-0.017 (0.045)
Services	0.020 (0.029)		0.010 (0.030)	-0.004 (0.019)		-0.003 (0.021)	0.016 (0.031)		-0.004 (0.032)
Resources Characteristics and States									
Income		+0.000** (0.000)	+0.000 (0.000)		+0.000 (0.000)	+0.000 (0.000)		+0.000 (0.000)	+0.000 (0.000)
Unemployed		-0.537*** (0.138)	-0.137 (0.160)		-0.740*** (0.137)	-0.535*** (0.141)		-0.034 (0.137)	-0.051 (0.147)
Married or Partnered		0.384*** (0.091)	0.187* (0.096)		0.249*** (0.070)	-0.009 (0.073)		-0.104 (0.089)	-0.071 (0.093)
Health		1.300*** (0.222)	0.515*** (0.218)		1.922*** (0.157)	1.338*** (0.160)		-0.593*** (0.211)	-0.510** (0.218)
Education		Yes	Yes		Yes	Yes		Yes	Yes
Sex, Race, Age, Age ² and Personality		Yes	Yes		Yes	Yes		Yes	Yes
N	678	665	665	1086	1054	1054	678	665	665
AIC	2513.84	2706.07	245.63	4058.58	4245.07	3835.51	3181.199	3068.861	3074.857
Pseudo R-Sq.	0.1447	0.0658	0.1577	0.1467	0.0828	0.1745	0.0024	0.0260	0.0273

tes:

Table 3 Non-cognitive skills, income and life satisfaction

	US						UK					
	Income		Life Satisfaction				Income		Life Satisfaction			
	OLS	OLS	O. Probit	O. Probit	O. Probit	2SLS	OLS	OLS	O. Probit	O. Probit	O. Probit	2SLS
cognitive skills												
in take Guidance	-333.685 (458.052)	-374.421 (452.239)	0.111*** (0.032)	0.101*** (0.034)			-28.215 (311.099)	170.439 (323.954)	0.132*** (0.025)	0.111*** (0.026)		
see other views	-600.439 (491.709)	-295.824 (472.383)	-0.035 (0.028)	-0.032 (0.030)			-517.592* (304.845)	-614.840** (302.116)	-0.047* (0.024)	-0.057** (0.025)		
in plan future	1745.621*** (379.322)	1437.632*** (396.785)	0.142*** (0.025)	0.116*** (0.026)			959.208*** (203.882)	488.410** (206.305)	0.223*** (0.023)	0.189*** (0.024)		
know what I like	133.055 (747.994)	138.521 (692.821)	0.071* (0.038)	0.067* (0.039)			253.341 (355.631)	358.217 (336.064)	0.089*** (0.033)	0.106*** (0.032)		
know strengths & weaknesses	-639.906 (785.084)	-1125.074 (745.922)	-0.065* (0.039)	-0.076* (0.041)			-425.572 (382.265)	-432.172 (392.386)	-0.093*** (0.035)	-0.067** (0.034)		
have 5 year plan	45.887 (302.388)	40.3894 (312.919)	0.086*** (0.020)	0.077*** (0.020)			46.098 (196.122)	71.699 (201.486)	0.082*** (0.016)	0.062*** (0.016)		
can provide leadership	573.563* (334.138)	333.276 (346.477)					814.888*** (227.338)	576.262** (248.947)				
good at sports	-98.574 (265.809)	-189.057 (270.065)	0.060*** (0.016)	0.050*** (0.018)			-62.506 (152.375)	-244.464 (166.495)	0.049*** (0.013)	0.036** (0.014)		
cognitive skills index					0.185*** (0.022)	0.413*** (0.145)					0.184*** (0.016)	0.224 (0.236)
controls												
come				+0.000 (0.000)	+0.000* (0.000)	+0.000 (0.000)				+0.000 (0.000)	+0.000 (0.000)	+0.000 (0.000)
unemployed		-5478.451*** (1530.749)		-0.457*** (0.162)	-0.503*** (0.148)	-0.935*** (0.297)		-3574.841 (2817.213)		-0.628*** (0.154)	-0.761*** (0.137)	-1.448*** (0.265)
married or partnered		-2641.345 (1781.903)		0.217** (0.092)	0.324*** (0.090)	0.551*** (0.176)		-1587.876 (993.254)		0.098 (0.070)	0.194*** (0.071)	0.371** (0.159)
health		12308.31*** (2842.633)		0.771*** (0.224)	1.085*** (0.222)	2.078*** (0.447)		8248.640*** (1561.303)		1.194*** (0.166)	1.865*** (0.160)	3.617*** (0.343)
education		Yes		Yes	Yes	Yes		Yes		Yes	Yes	Yes
sex, Race, Age, Age ² & Personality		Yes		Yes	Yes	Yes		Yes		Yes	Yes	Yes
	665	665	678	665	665	665	1,068	1,054	1,086	1,054	1,054	1,054
	14933.01	14868.39	2682.886	2590.976	2628.067		23420.81	23049.61	4137.934	3933.356	4111.995	
Δ-Sq (OLS)/Pseudo R-Sq (OProbit)	0.0308	0.1372	0.0878	0.1112	0.0939		0.0463	0.1001	0.1307	0.154	0.1123	

Notes:
 1. The instrumental variable in the 2SLS regressions is the predicted values from a regression of the non-cognitive skills index on participation yesterday in a number of daily activities – cooking, drinking, exercising and spending time with children. The F-stats in the first-stage regressions are 43.2 for the US and 14.3 for the UK, indicating sufficiently strong instruments. In another, unreported, 2SLS regression, the four daily activities themselves were used as instrumental variables. The p-values for the instrumented non-cognitive skills index were 0.005 for the US and 0.227 for the UK. The F-stats in the first-stage regressions were 11.0 for the US, indicating borderline sufficiently strong instruments, but only 3.8 for the UK. In the corresponding tests for overidentifying restrictions, the null hypothesis of no misspecification was not rejected in either case (p-values of 0.375 for the US and 0.250 for the UK).

Table 3 Non-cognitive skills, income and life satisfaction

		US						
		Income		Life Satisfaction				
		OLS	OLS	O. Probit	O. Probit	O. Probit	2SLS	OLS
cognitive skills								
Can take Guidance		-333.685 (458.052)	-374.421 (452.239)	0.111*** (0.032)	0.101*** (0.034)			-28.3 (311)
See other views		-600.439 (491.709)	-295.824 (472.383)	-0.035 (0.028)	-0.032 (0.030)			-517 (304)
Can plan future		1745.621*** (379.322)	1437.632*** (396.785)	0.142*** (0.025)	0.116*** (0.026)			959 (203)
Know what I like		133.055 (747.994)	138.521 (692.821)	0.071* (0.038)	0.067* (0.039)			253 (355)
Know strengths & weaknesses		-639.906 (785.084)	-1125.074 (745.922)	-0.065* (0.039)	-0.076* (0.041)			-425 (382)
Have 5 year plan		45.887 (302.388)	40.3894 (312.919)	0.086*** (0.020)	0.077*** (0.020)			46.0 (196)
Can provide leadership		573.563* (334.138)	333.276 (346.477)					814 (227)
Good at sports		-98.574 (265.809)	-189.057 (270.065)	0.060*** (0.016)	0.050*** (0.018)			-62.1 (152)
cognitive skills index						0.185*** (0.022)	0.413*** (0.145)	
controls								
Income					+0.000 (0.000)	+0.000* (0.000)	+0.000 (0.000)	
Unemployed			-5478.451*** (1530.749)		-0.457*** (0.162)	-0.503*** (0.148)	-0.935*** (0.297)	
Married or partnered			-2641.345 (1781.903)		0.217** (0.092)	0.324*** (0.090)	0.551*** (0.176)	
Health			12308.31*** (2842.633)		0.771*** (0.224)	1.085*** (0.222)	2.078*** (0.447)	
Education			Yes		Yes	Yes	Yes	

Table 4 Ranks of individual capabilities by country

<i>What people are able to do</i>	<i>US</i>	<i>UK</i>
Get my rubbish cleared away	1	4
Practice my religious beliefs	2	3
Make use of banking and personal finance services	3	1
Keep a pet or animal at home with ease if I so wish	4	8
Get to a range of shops	5	2
Get help from the police *	6	11
Am treated where I live as an equal (and not discriminated against)	7	9
Express my political views when I wish	8	7
Get to places I need to without difficulty	9	10
Visit parks or countryside whenever I want *	10	5
Be treated by a doctor or nurse *	11	6
Walk in my local neighbourhood safely at night	12	14
Be treated as an equal (and not discriminated against) by people at work	13	13
Get trades people or the landlord to help fix problems in the house	14	15
Use my talents and skills at work	15	17
Find work when I need to	16	18
Socialise with others in family as I would wish	17	19

Visit parks or countryside whenever I want *	10	5
Be treated by a doctor or nurse *	11	6
Walk in my local neighbourhood safely at night	12	14
Be treated as an equal (and not discriminated against) by people at work	13	13
Get trades people or the landlord to help fix problems in the house	14	15
Use my talents and skills at work	15	17
Find work when I need to	16	18
Socialise with others in family as I would wish	17	19
Find a home suitable for my needs	18	16
Feel valued and loved	19	21
Work under a good manager at the moment	20	24
Socialise at work *	21	27
Share domestic tasks with the household fairly	22	23
Enjoy the kinds of personal relationships that I want	23	22
Make ends meet	24	20
Work in an environment that has little pollution	25	25
Get help from a solicitor *	26	12
Achieve a good work life balance	27	26
Take part in local social events	28	28
Be promoted or recognised at work	29	29

Anand and Roope (2014)

HAPPINESS AND DEVELOPMENT IN VERY YOUNG CHILDREN

Capabilities and Welfare over the Lifespan - Very Young Children


- Mother and Child module GSOEP
- Birth and 2years
- Data for all three equations:
 $f1=f(\text{parenting regime, household affluence, local environment})$
 $u2-u0=g(f1\dots f9)$
 $C=h(f1\dots f9)$

Capabilities and Welfare over the Lifespan

Very Young Children

Functionings

- **Sing** **Singing children's songs with or to the child**
- **Walk** **Taking walks outdoors**
- **Paint** **Painting or doing arts and crafts**
- **Read** **Reading or telling stories**
- **Look** **Looking at picture books**
- **Play** **Going to the playground**
- **Visit** **Visiting other families with children**
- **Shop** **Going shopping with the child**
- **Watch** **Watching television or videos with the child**



"And it came to pass in those days, that there went out a decree from Caesar Augustus, that all the world should be taxed."



© 2000

Activities Significant in Child Happiness Equation

Reading



CN
COLLECTION

Shopping



Capability Indicators/Skills Measures

- Talking
- t1 Understands brief instructions such as “go get your shoes”
- t2 Forms sentences with at least two words
- t3 Speaks in full sentences (with four or more words)
- t4 Listens attentively to a story for five minutes or longer
- t5 Passes on simple messages such as “dinner is ready”
- Everyday skills
- e1 Uses a spoon to eat, without assistance and without dripping
- e2 Blows his/her nose without assistance
- e3 Uses the toilet to do ‘number two’
- e4 Puts on pants and underpants the right way around
- e5 Brushes his/her teeth without assistance
- Motor
- m1 Walks forwards down the stairs
- m2 Opens doors with the door handle
- m3 Climbs up playground climbing equipment and other high playground structures
- m4 Cuts paper with scissors
- m5 Paints/draws recognizable shapes on paper
- Social
- s1 Calls familiar people by name; for example, says “mommy” and “daddy” or uses the father’s first name
- s2 Participates in games with other children
- s3 Get’s involved in role-playing games (‘playing pretend’)
- s4 Shows a special liking for particular playmates or friends
- s5 Call his/her own feelings by name, eg “sad”, “happy”, “scared”

Capabilities and Functions Simultaneous Equations – 3SLS

- Capabilities (Development) Eq

$$Q_i^{talk} = a_1 + b_{1,1}f_i^{xsing} + b_{1,2}age_i + \varepsilon_{1,i}$$

- Functionings (Targeting) Eq

$$f_i^{xsing} = a_2 + b_{2,1}Q_i^{talk} + b_{2,2}nationality_i + \varepsilon_{2,i}$$

Capabilities and Functions Simultaneous Equations – 3SLS

- Capabilities (Development) Eq

$$Q_i^{talk} = a_1 + b_{1,1}f_i^{xsing} + b_{1,2}age_i + \varepsilon_{1,i}$$

- Functionings (Targeting) Eq

$$f_i^{xsing} = a_2 + b_{2,1}Q_i^{talk} + b_{2,2}nationality_i + \varepsilon_{2,i}$$

**Talking Capabilities and Singing Activities
(Being sung to functioning)**

	b	Se	P
CHILD Talking equation			
Mother Singing	2.573947	1.139581	0.023903
Age	0.084253	0.014116	2.39E-09
_cons	-1.06683	1.222908	0.383007
Mother Singing equation			
Talk	-0.03992	0.044706	0.371832
Nationality	-0.16612	0.046607	0.000365
_cons	1.098385	0.186239	3.69E-09

Child Skill Production Functions

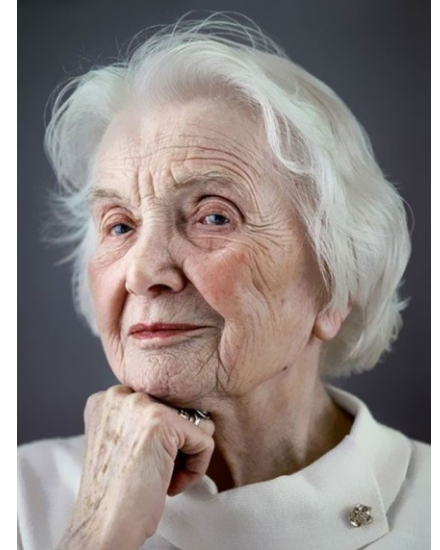
Speech related to singing reading visiting

Motor skills related to singing painting

Social skills related to visiting singing

Everyday skills related to playground visiting

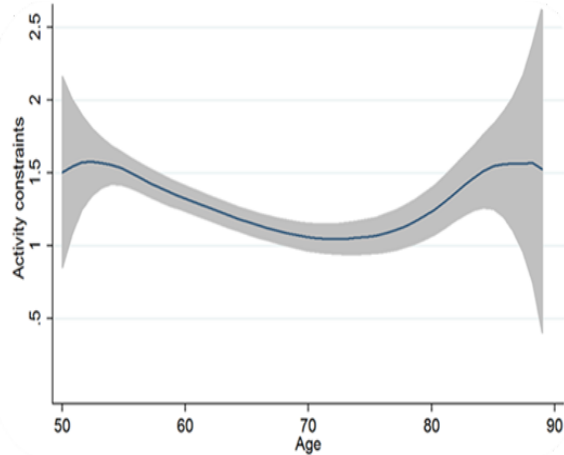
→ Cognate Activities Important



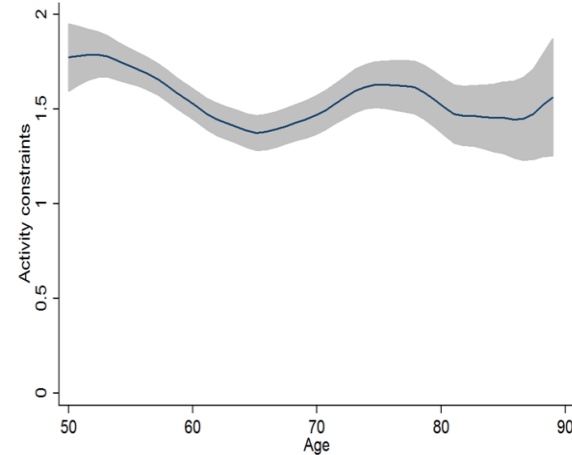
WELLBEING OVER 50

‘Would you like to engage in [activity] more often: Yes/No’

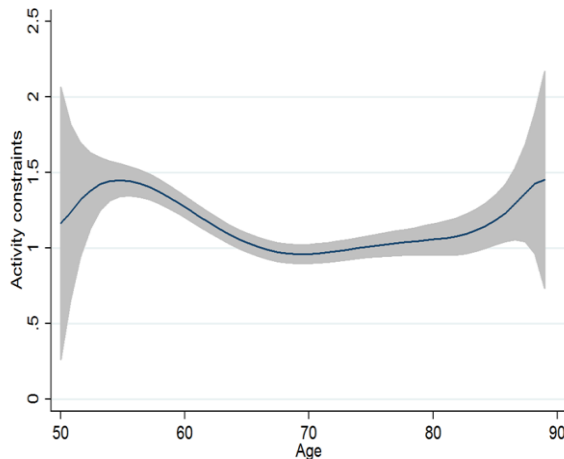
Men left school 16 years and over



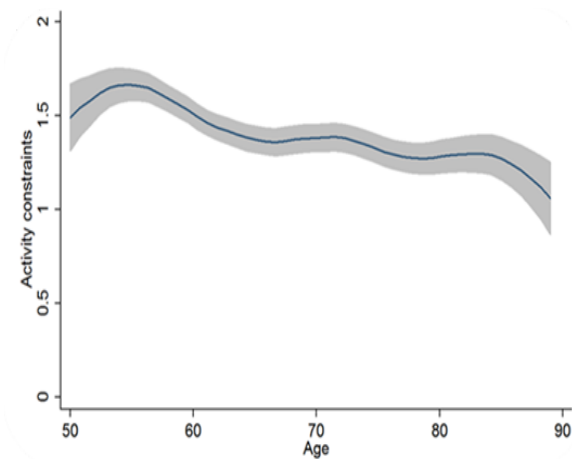
Women left school 16 years and over



Men left school before 16 years



Women left school before 16 years



Activity Involvement

VARIABLES	(1) Eating out	(2) Cinema	(3) Gallery	(4) Theatre	(5) Sports club	(6) Social club	(7) Church	(8) Newspaper	(9) Hobby	(10) Day trip	(11) Internet
No cardiovascular condition	-0.088* (0.051)	0.087* (0.052)	0.049 (0.052)	-0.031 (0.050)	-0.199** (0.078)	-0.077 (0.077)	-0.080 (0.120)	-0.021 (0.054)	-0.164*** (0.055)	-0.068 (0.053)	0.174*** (0.067)
No chronic health condition	0.008 (0.059)	0.086 (0.060)	0.145** (0.060)	-0.006 (0.058)	0.079 (0.090)	0.037 (0.090)	0.214 (0.141)	-0.022 (0.063)	0.150** (0.063)	0.116* (0.062)	-0.001 (0.076)
Has good eyesight	0.061 (0.053)	0.133** (0.063)	-0.052 (0.063)	0.043 (0.060)	-0.174* (0.097)	0.064 (0.085)	-0.148 (0.136)	-0.025 (0.057)	0.004 (0.056)	-0.110* (0.057)	0.083 (0.070)
Net financial wealth (log)	0.061 (0.048)	0.009 (0.045)	-0.000 (0.045)	0.053 (0.044)	-0.049 (0.069)	0.065 (0.074)	-0.164 (0.106)	-0.029 (0.050)	-0.072 (0.052)	0.028 (0.050)	-0.101 (0.063)
Gender (male=1)	-0.156*** (0.056)	-0.460*** (0.066)	-0.153** (0.060)	-0.557*** (0.060)	-0.289*** (0.079)	0.427*** (0.072)	-1.053*** (0.113)	0.102*** (0.037)	0.013 (0.034)	-0.032 (0.033)	0.313*** (0.050)
Age	0.150*** (0.056)	0.020 (0.061)	0.221*** (0.060)	0.298*** (0.057)	0.126 (0.093)	0.115 (0.088)	0.086 (0.134)	0.720*** (0.060)	0.000 (0.060)	0.874*** (0.062)	-0.016 (0.080)
Age ²	-0.001*** (0.000)	-0.000 (0.000)	-0.002*** (0.000)	-0.003*** (0.000)	-0.001* (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.005*** (0.000)	-0.001*** (0.000)	-0.008*** (0.000)	0.004*** (0.001)
Age finished education	0.097*** (0.013)	0.233*** (0.013)	0.277*** (0.013)	0.252*** (0.012)	0.097*** (0.017)	-0.100*** (0.016)	0.267*** (0.027)	0.027*** (0.008)	0.066*** (0.008)	0.102*** (0.008)	0.188*** (0.012)
Married	0.003 (0.333)	-0.906*** (0.306)	-0.455 (0.307)	-0.485 (0.318)	-0.463 (0.532)	-0.345 (0.567)	1.437 (0.986)	0.043 (0.343)	0.044 (0.350)	-0.415 (0.349)	-0.133 (0.435)
Divorced	0.189 (0.334)	-0.814** (0.322)	-0.230 (0.316)	-0.222 (0.326)	-0.720 (0.551)	-0.450 (0.574)	2.178** (1.054)	-0.065 (0.346)	-0.277 (0.351)	-0.434 (0.354)	-0.423 (0.436)
Widowed	0.349 (0.346)	-0.648** (0.325)	-0.025 (0.328)	-0.109 (0.335)	-0.219 (0.556)	-0.181 (0.581)	1.378 (1.016)	-0.200 (0.354)	-0.263 (0.362)	-0.423 (0.362)	-0.041 (0.446)
Mean of time-varying regressors	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Thresholds	Not reported										
Constant					-21.980*** (2.532)	-11.132*** (2.267)	-18.852*** (3.524)	-6.937*** (1.135)	-9.844*** (1.068)	-4.525*** (1.048)	-3.126* (1.595)
Rho ^a (intraclass correlation coefficient)	0.741*** (0.007)	0.809*** (0.005)	0.766*** (0.007)	0.776*** (0.006)	1.422*** (0.060)	1.220*** (0.062)	3.261*** (0.045)	-0.328*** (0.063)	-0.660*** (0.073)	-0.724*** (0.074)	0.462*** (0.060)
Observations	14,619	13,793	13,486	13,956	14,263	14,263	14,263	14,845	14,845	14,845	14,845

Models of Life Satisfaction

Men

- Cinema ++
- Church, Newspaper, Hobby
- Grandparent *negative*
- Stronger connections to health

Women

- Eating out ++
- Art Church Hobby
- Internet use *negative*
- Weaker connections to health

Anand and Roope (2015)

Multi-dimensional deprivation – local *and* personal

Table 4. Impact of Deprivation on Capabilities

	Ordered Probit Capability Models				
	Home	Work	Comm	Env	Access
	(1)	(2)	(3)	(4)	(5)
IMD	-0.002 (0.004)	-0.004 (0.005)	-0.011** (0.004)	-0.009** (0.004)	-0.006 (0.004)
Age	-0.046 (0.041)	-0.041 (0.046)	-0.053 (0.040)	0.022 (0.043)	-0.054 (0.042)
Age Squared	0.001 (0.000)	+0.000 (0.001)	0.001 (0.000)	-0.000 (0.001)	0.001 (0.001)
Health	1.714*** (0.237)	1.658*** (0.362)	0.985*** (0.243)	1.356*** (0.235)	0.914*** (0.230)
Income per cap.	-0.000 (0.000)	+0.000 (0.000)	-0.000 (0.000)	+0.000 (0.000)	+0.000 (0.000)
Male	0.011 (0.100)	-0.011 (0.111)	-0.117 (0.102)	0.004 (0.100)	0.041 (0.102)
Education	0.141 (0.101)	-0.080 (0.115)	0.257** (0.106)	0.118 (0.103)	0.141 (0.108)
White	-0.089 (0.231)	0.193 (0.244)	-0.344 (0.319)	0.265 (0.207)	0.169 (0.215)
Unemployed	-0.907*** (0.235)		-0.390* (0.236)	-0.699*** (0.234)	-0.521** (0.205)
Married / Partnered	0.695*** (0.109)	0.215* (0.125)	0.140 (0.114)	0.290*** (0.107)	0.248** (0.113)
Have dependent children	-0.314*** (0.118)	0.166 (0.129)	0.078 (0.120)	0.201* (0.116)	0.168 (0.124)
Controls for personality	Y	Y	Y	Y	Y
N	505	400	505	505	505
AIC	1821.447	1474.513	1408.063	1527.45	1608.446
Pseudo-R Sq	0.0881	0.0363	0.0640	0.0889	0.0610

Table Individual Wellbeing in most and least deprived areas

	Most deprived (IMD>26.91)			Least deprived (IMD<11.45)			t-test
	Obs	Mean	S.E.	Obs	Mean	S.E.	
Life Satisfaction	141	6.752	0.190	126	7.198	0.192	-1.6515*
Happiness yesterday	141	6.674	0.193	126	6.984	0.202	-1.112
<i>Home</i>							
Share tasks fairly	141	7.085	0.253	126	7.508	0.255	-1.177
Socialise with family members	141	7.426	0.235	126	7.706	0.215	-0.882
Make ends meet	141	7.007	0.261	126	7.817	0.237	-2.296**
Work-life balance	141	6.447	0.270	126	7.222	0.233	-2.174**
Find suitable home	141	7.270	0.235	126	7.992	0.239	-2.153**
Enjoy personal relations	141	6.965	0.245	126	7.151	0.250	-0.533
Feel loved and valued	141	6.936	0.252	126	7.262	0.242	-0.932
Home cap total	141	4.135	0.217	126	4.492	0.205	-1.198
<i>Work</i>							
Find work when need	103	7.155	0.273	104	8.067	0.235	-2.534**
Can use skills	103	7.252	0.238	104	8.413	0.211	-3.653***
Have good boss	103	7.194	0.293	104	7.817	0.241	-1.642
Treated as equal	103	7.680	0.288	104	8.683	0.213	-2.799***
Promotion opportunities	103	5.757	0.298	104	6.231	0.290	-1.140
Socialise with colleagues	103	6.699	0.274	104	6.721	0.253	-0.059
Work cap total	103	3.524	0.206	104	4.106	0.191	-2.074**
<i>Community</i>							
Participate social events	141	5.752	0.239	126	6.365	0.234	-1.835*
Treated as equal	141	7.752	0.224	126	8.452	0.197	-2.349**
Religious freedom	141	8.390	0.225	126	8.889	0.189	-1.699*
Political freedom	141	8.071	0.204	126	8.516	0.189	-1.597
Comm cap total	141	2.496	0.125	126	2.968	0.113	-2.802***

Happiness yesterday	141	6.674	0.193	126	6.984	0.202	-1.112
<i>Home</i>							
Share tasks fairly	141	7.085	0.253	126	7.508	0.255	-1.177
Socialise with family members	141	7.426	0.235	126	7.706	0.215	-0.882
Make ends meet	141	7.007	0.261	126	7.817	0.237	-2.296**
Work-life balance	141	6.447	0.270	126	7.222	0.233	-2.174**
Find suitable home	141	7.270	0.235	126	7.992	0.239	-2.153**
Enjoy personal relations	141	6.965	0.245	126	7.151	0.250	-0.533
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Home cap total	141	4.135	0.217	126	4.492	0.205	-1.198
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Treated as equal	103	7.680	0.288	104	8.683	0.213	-2.799***
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Political freedom	141	8.071	0.204	126	8.516	0.189	-1.597
Comm cap total	141	2.496	0.125	126	2.968	0.113	-2.802***
<i>Environment</i>							
Safe at night	141	6.830	0.233	126	8.365	0.190	-5.112***
Access to parks	141	7.865	0.234	126	8.889	0.185	-3.433***
Low pollution	141	5.957	0.254	126	7.278	0.226	-3.886***
Can keep a pet	141	7.574	0.276	126	8.397	0.273	-2.120**
Can get to places easily	141	7.879	0.239	126	9.024	0.172	-3.890***
Env cap total	141	3.135	0.140	126	3.889	0.124	-4.039***
<i>Access to Services</i>							

Violent Crime, Gender Inequalities and Life Satisfaction

(Anand and Santos 2007 and Santos 2013)

Data

- Past Experience/Future vulnerability to domestic, sexual and other forms of assault
- Current experience of Safety in local area during day and night

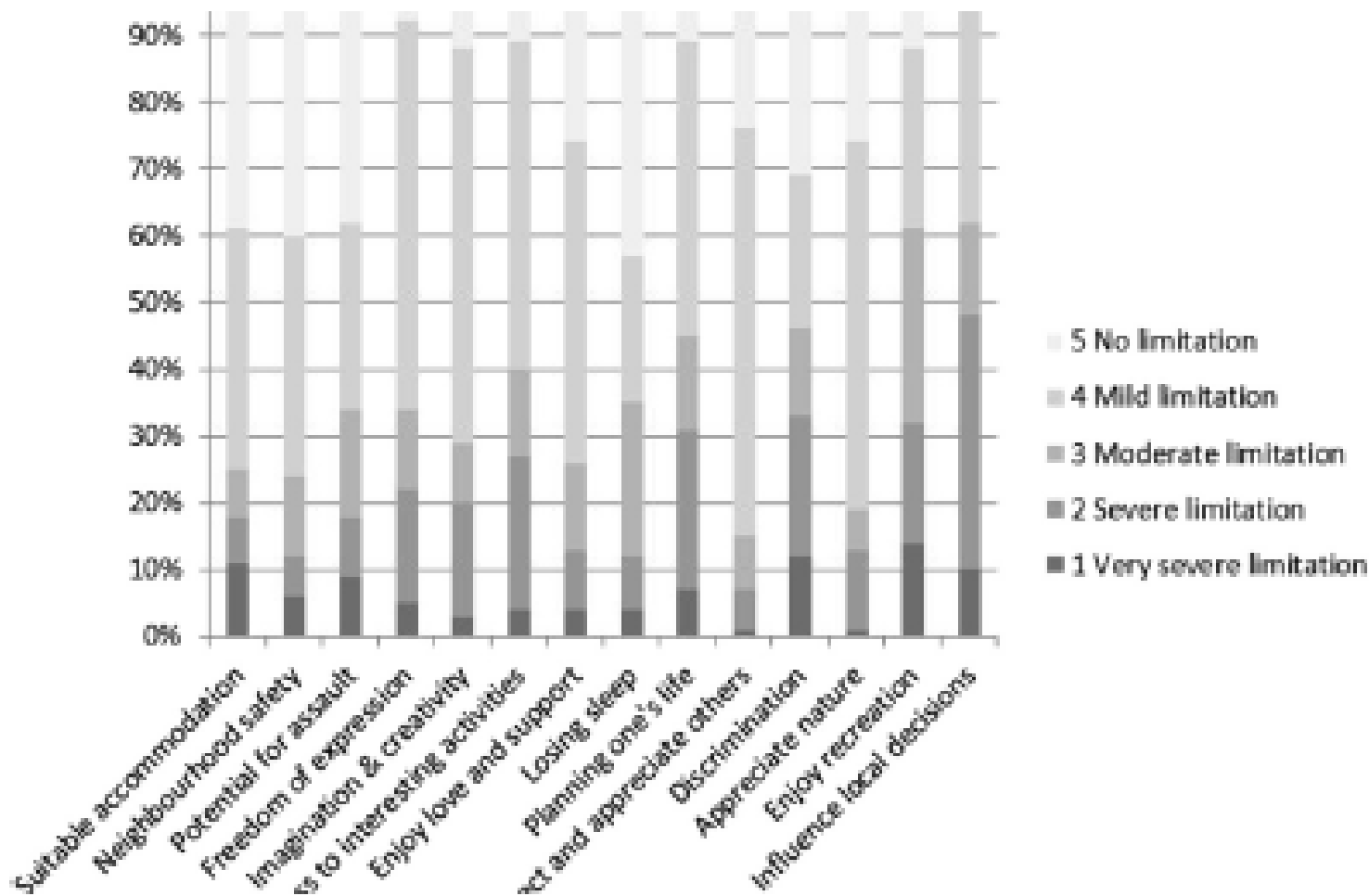
Emerging Themes

1. Violence in general has a negative impact on life satisfaction whether you use self report or local area reports
2. Self-reported vulnerability to future assault drives out past experience of violence in happiness equations
3. Some evidence that higher relative earning females are more at risk of domestic violence
4. Life satisfaction based valued measures of violence suggest a cost of c10% of GDP.

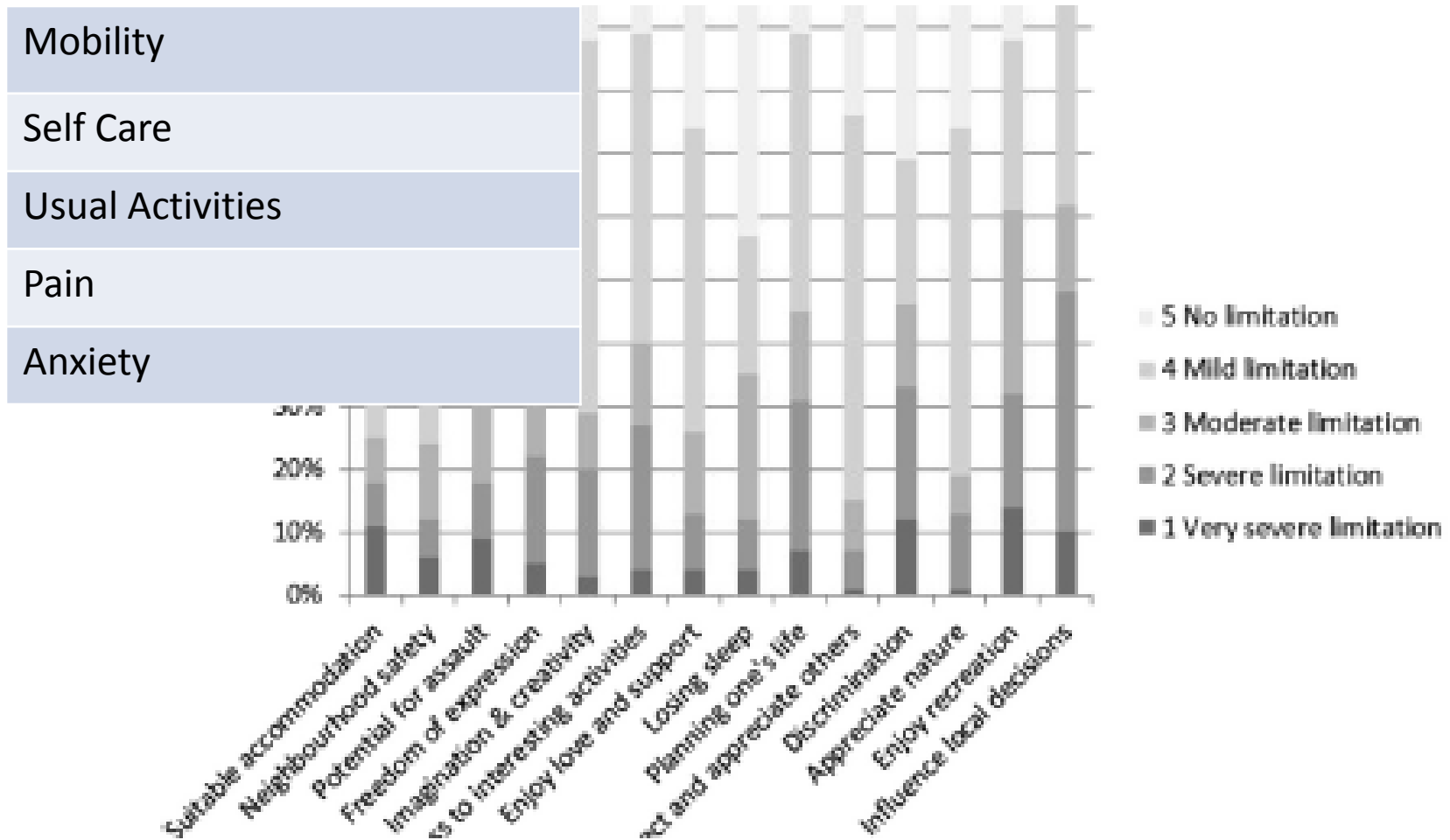
Measurement of Health

- Judit Simon (et al) 2013 Social Science and Medicine
- Trial to Evaluate Community Treatment Order
- Developed 16 item scale based on subset of capability indicators

Measurement of Health



Measurement of Health



Reasons to monitor wellbeing

- Income isn't always closely related or flexible
- Two New(ish) Market Failures
 - Choice Environments
 - Consumer Behavior Highly Researched
- Politicians could manipulate wellbeing
- Monitoring does not imply intervention

Should we monitor wellbeing outcomes?

2 new(ish) market failures

Suboptimal Choice
Environments

Consumer Behaviour Highly
Researched (Paternalism)



Reasons to monitor wellbeing

- Income isn't always closely related or flexible
- Two New(ish) Market Failures
 - Choice Environments
 - Consumer Behavior Highly Researched
- Politicians could manipulate wellbeing
- Monitoring does not imply intervention