Money is everything, or is it? Explorations of the stability of welfare inference across money-metric, elicited, and bio-metric measures of wellbeing

Gabriela Farfan, World Bank

Jed Friedman, World Bank

Giovanni Pollitti, Cayetano Heredia University

Renos Vakis, World Bank

Elian Zeballos, USDA

Interest in wellbeing beyond money measures

- For much economic and policy analysis, welfare most commonly defined in terms of income or consumption, valued at market prices

- Money-metric consumption widely seen as meaningful but incomplete
  - certain key consumption goods typically not provided through market
  - accuracy of measurement
  - unclear mapping to broader conceptualizations of welfare, such as capabilities

- Interest in broader notions of wellbeing, but much diversity of proposed measures…

- …and what to do if we wish to draw broader inference? Example of two wellbeing dimensions…
  - If only one observed, can we draw inference on broader wellbeing?
    - Depends on association between dimensions
  - If only one observed, can we make broader wellbeing comparisons across groups?
    - Depends on stability of association across groups
  - If both dimensions observed, either
    - analyze separately
    - or aggregate, but how?

Interest in wellbeing beyond money measures (cont.)

- This work explores challenges of both
  - Broader inference across setting
  - Aggregation across dimension

- Uses new data on a wide range of standard wellbeing associations in a sample of 1560 Peruvian adults
  - Sample drawn from 2018 ENAHO, Peru's living standards survey
  - Follow-up three months later with further survey and collection of biometric samples
  - Purposively selected settings: urban Lima and rural Sierra Central

Elicited (subjective) wellbeing

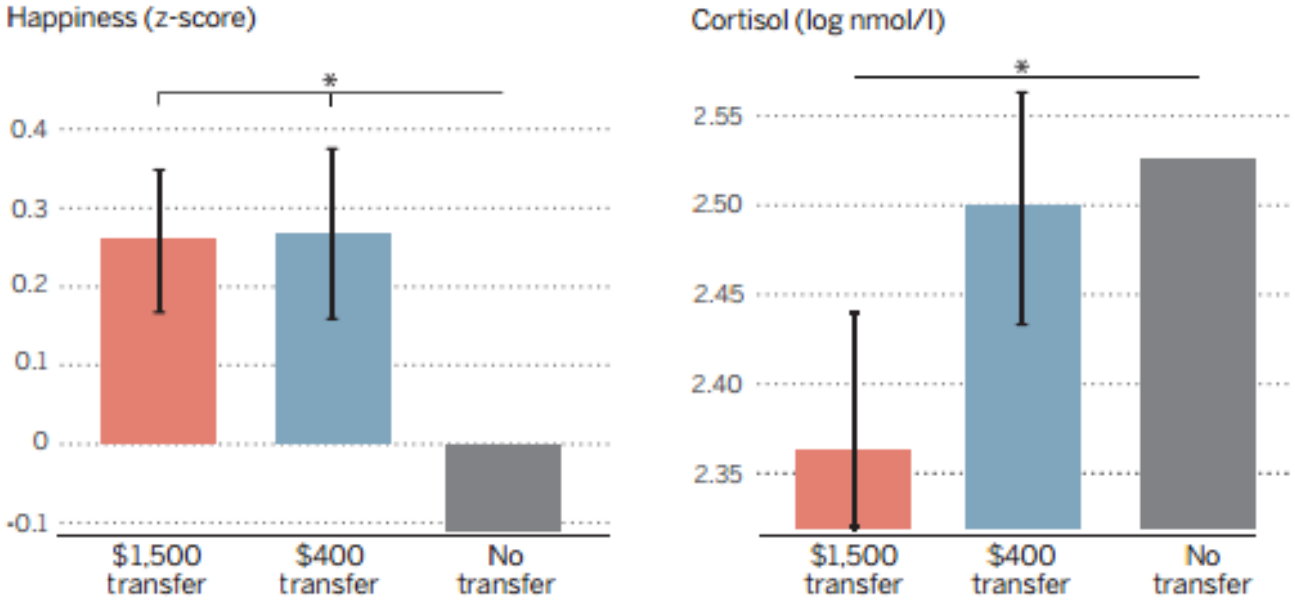
- Extensive sub-field of subjective wellbeing (SWB):
  - Evaluative approaches – respondents assess satisfaction with domains of life
  - Affective approaches – respondents report on positive or negative emotions
  - “Eudaimonic” approaches – assess functionings in key domains

- Attractive to researchers for various reasons
  - Relative low cost to measure – small number of survey questions
  - Arguably more comprehensive notion of welfare than money-metric
    - Includes (implicit) assessment of value of non-market goods, inequality tolerance, etc.

- However shortcomings
  - Unknown cross-group heterogeneity in interpretation of meaning and discretization of response
  - Unknown means of valid aggregation, both within individuals across dimensions of welfare and across individuals

Biometric indicators of wellbeing

- Various markers related to physical/psycho-social health, assessed against known standards
- Emergent strands of research identify influence of stress on sub-optimal decisions, and higher stress among poorer individuals



Source: Haushofer & Fehr (2014)

Measures in ENAHO-MW

Money-metric	
Income	Log household per capita income (Soles/month, spatially deflated)
	Log individual income (Soles/month, spatially deflated)
Consumption	Household per capita consumption (Soles/month, spatially deflated)
Wealth	House quality and household asset index (standardized)

Biometric	
Cortisol	a. Salivary, assessed in AM and PM (microg/l)
	b. Hair, 3cms of length (picog/mg hair)
DHEA	Hair, 3cms of length (picog/mg hair)

Elicited welfare	
Subjective poverty	Perception of economic condition (10 rung ladder)
Evaluative	Overall life satisfaction (10 rung ladder)
Affective	Two measures from Gallup World Survey (each normalized to 10 point scale)
	a. Positive affect, feelings of enjoyment, happiness in past day
	b. Negative affect, feelings of sadness, stress in past day
Eudaimonic	Basic Psychological Needs scale from Self-Determination Theory
	a. Autonomy, feelings of control over life and self-determination
	b. Competence, feelings of worthiness tied to available skills
	c. Relatedness, feelings of connection to family and community
Mental health	Depression, from the CES-D 20-point scale

The covariation of daily cortisol patterns

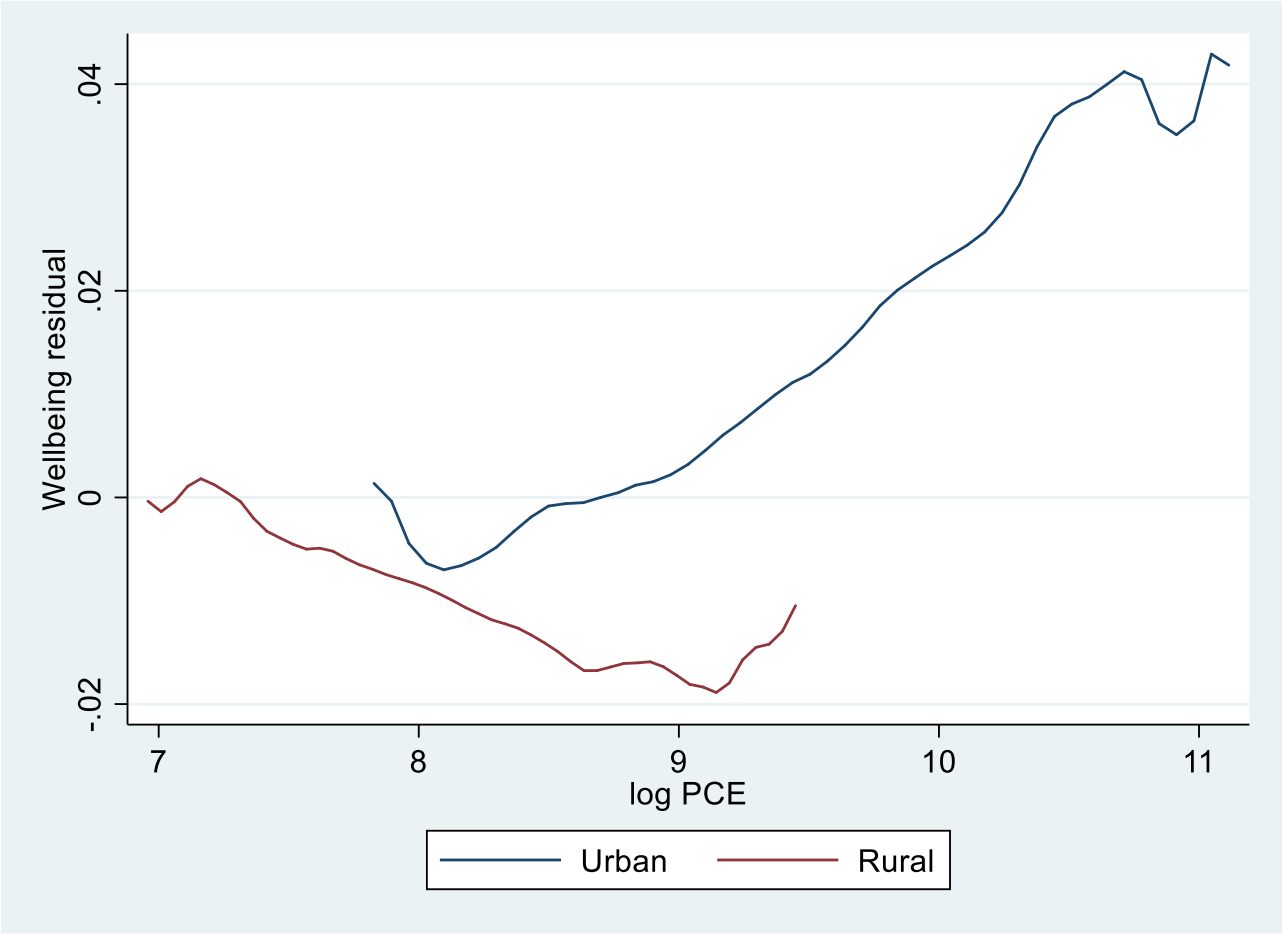
Wellbeing measure	AM Cortisol	PM Cortisol	Average Cortisol	Cortisol Gradient
1. Log per capita expenditure	0.312*	-0.295	0.017	0.304*
	0.161	0.245	0.265	0.160
2. Log per capita income	0.282	-0.539*	-0.256	0.410**
	0.199	0.314	0.345	0.198
3. Log individual income	0.319	-0.918**	-0.599	0.618**
	0.275	0.423	0.440	0.280
4. Household wealth index	0.911**	-1.679**	-0.769	1.295***
	0.402	0.670	0.710	0.423
5. Subjective poverty	0.961***	-1.366**	-0.405	1.164***
	0.346	0.547	0.590	0.350
6. Life satisfaction	0.758*	-2.101***	-1.343*	1.430***
	0.400	0.675	0.728	0.419
7. Positive affect	-0.210	-1.961	-2.171	0.876
	0.751	1.259	1.370	0.778
8. Negative affect	-0.027	1.680*	1.653	-0.853
	0.534	0.932	1.030	0.559
9. Autonomy	0.098	-0.188	-0.090	0.143
	0.086	0.154	0.164	0.095
10. Relatedness	0.078	0.025	0.103	0.027
	0.082	0.130	0.138	0.084
11. Competence	-0.045	-0.235*	-0.280*	0.095
	0.094	0.141	0.154	0.092
12. Depression	0.211	0.171	0.382	0.020
	0.162	0.241	0.261	0.159

The covariation of daily cortisol patterns

Wellbeing measure	AM Cortisol	PM Cortisol	Average Cortisol	Cortisol Gradient
1. Log per capita expenditure	0.312*	-0.295	0.017	0.304*
	0.161	0.245	0.265	0.160
2. Log per capita income	0.282	-0.539*	-0.256	0.410**
	0.199	0.314	0.345	0.198
3. Log individual income	0.319	-0.918**	-0.599	0.618**
	0.275	0.423	0.440	0.280
4. Household wealth index	0.911**	-1.679**	-0.769	1.295***
	0.402	0.670	0.710	0.423
5. Subjective poverty	0.961***	-1.366**	-0.405	1.164***
	0.346	0.547	0.590	0.350
6. Life satisfaction	0.758*	-2.101***	-1.343*	1.430***
	0.400	0.675	0.728	0.419
7. Positive affect	-0.210	-1.961	-2.171	0.876
	0.751	1.259	1.370	0.778
8. Negative affect	-0.027	1.680*	1.653	-0.853
	0.534	0.932	1.030	0.559
9. Autonomy	0.098	-0.188	-0.090	0.143
	0.086	0.154	0.164	0.095
10. Relatedness	0.078	0.025	0.103	0.027
	0.082	0.130	0.138	0.084
11. Competence	-0.045	-0.235*	-0.280*	0.095
	0.094	0.141	0.154	0.092
12. Depression	0.211	0.171	0.382	0.020
	0.162	0.241	0.261	0.159

The covariation of daily cortisol patterns

- Depends on the setting!



A range of measures

- In the spirit of Ryff (1989): Happiness is everything, or is it?

Results from 1560 Peruvian adults

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1. Log per capita expenditure		.896	.599	.74	.644	.411	.05	-.098	.065	.028	.297	-.02	.04	-.05	.065
2. Log per capita income			.679	.69	.609	.4	.059	-.101	.081	.071	.311	-.024	.052	-.057	.08
3. Log individual income				.476	.448	.326	.059	-.115	.124	.101	.344	-.141	.035	-.034	.051
4. Household wealth index					.613	.437	.047	-.139	.078	.082	.335	-.061	.026	-.073	.064
5. Subjective poverty						.512	.127	-.164	.128	.063	.331	-.101	.051	-.105	.104
6. Life satisfaction							.25	-.275	.252	.178	.371	-.257	.018	-.092	.067
7. Positive affect								-.664	.161	.164	.163	-.373	-.005	-.047	.021
8. Negative affect									-.211	-.149	-.2	.498	.002	.027	-.013
9. Autonomy										.457	.466	-.284	.035	-.009	.038
10. Relatedness											.524	-.276	.017	.031	-.001
11. Competence												-.313	-.039	-.048	-.01
12. Depression													.009	.007	.004
13. AM cortisol														.159	.843
14. PM cortisol															-.397
15. Cortisol gradient															

A range of measures

- In the spirit of Ryff (1989): Happiness is everything, or is it?

Results from 1560 Peruvian adults

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1. Log per capita expenditure		.896	.599	.74	.644	.411	.05	-.098	.065	.028	.297	-.02	.04	-.05	.065
2. Log per capita income			.679	.69	.609	.4	.059	-.101	.081	.071	.311	-.024	.052	-.057	.08
3. Log individual income				.476	.448	.326	.059	-.115	.124	.101	.344	-.141	.035	-.034	.051
4. Household wealth index					.613	.437	.047	-.139	.078	.082	.335	-.061	.026	-.073	.064
5. Subjective poverty						.512	.127	-.164	.128	.063	.331	-.101	.051	-.105	.104
6. Life satisfaction							.25	-.275	.252	.178	.371	-.257	.018	-.092	.067
7. Positive affect								-.664	.161	.164	.163	-.373	-.005	-.047	.021
8. Negative affect									-.211	-.149	-.2	.498	.002	.027	-.013
9. Autonomy										.457	.466	-.284	.035	-.009	.038
10. Relatedness											.524	-.276	.017	.031	-.001
11. Competence												-.313	-.039	-.048	-.01
12. Depression													.009	.007	.004
13. AM cortisol														.159	.843
14. PM cortisol															-.397
15. Cortisol gradient															

- All money-metric measures highly, or fairly highly, correlated

A range of measures

- In the spirit of Ryff (1989): Happiness is everything, or is it?

Results from 1560 Peruvian adults

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1. Log per capita expenditure		.896	.599	.74	.64	.411	.05	-.098	.065	.028	.297	-.02	.04	-.05	.065
2. Log per capita income			.679	.69	.60	.4	.059	-.101	.081	.071	.311	-.024	.052	-.057	.08
3. Log individual income				.476	.44	.326	.059	-.115	.124	.101	.344	-.141	.035	-.034	.051
4. Household wealth index					.61	.437	.047	-.139	.078	.082	.335	-.061	.026	-.073	.064
5. Subjective poverty						.512	.127	-.164	.128	.063	.331	-.101	.051	-.105	.104
6. Life satisfaction							.25	-.275	.252	.178	.371	-.257	.018	-.092	.067
7. Positive affect								-.064	.101	.104	.165	-.373	-.005	-.047	.021
8. Negative affect									-.211	-.149	-.2	.498	.002	.027	-.013
9. Autonomy										.457	.466	-.284	.035	-.009	.038
10. Relatedness											.524	-.276	.017	.031	-.001
11. Competence												-.313	-.039	-.048	-.01
12. Depression													.009	.007	.004
13. AM cortisol														.159	.843
14. PM cortisol															-.397
15. Cortisol gradient															

- Among SWB measures, life satisfaction is the most consistently correlated with money-metric and other SWB measures

A range of measures

- In the spirit of Ryff (1989): Happiness is everything, or is it?

Results from 1560 Peruvian adults

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1. Log per capita expenditure		.896	.599	.74	.644	.411	.05	-.098	.065	.028	.297	-.02	.04	-.05	.065
2. Log per capita income			.679	.69	.609	.4	.059	-.101	.081	.071	.311	-.024	.052	-.057	.08
3. Log individual income				.476	.448	.326	.059	-.115	.124	.101	.344	-.141	.035	-.034	.051
4. Household wealth index					.613	.437	.047	-.139	.078	.082	.335	-.061	.026	-.073	.064
5. Subjective poverty						.512	.127	-.164	.128	.063	.331	-.101	.051	-.105	.104
6. Life satisfaction							.25	-.275	.252	.178	.371	-.257	.018	-.092	.067
7. Positive affect								-.664	.161	.164	.163	-.373	-.005	-.047	.021
8. Negative affect									-.211	-.149	-.2	.498	.002	.027	-.013
9. Autonomy										.457	.466	-.284	.035	-.009	.038
10. Relatedness											.524	-.276	.017	.031	-.001
11. Competence												-.313	-.039	-.048	-.01
12. Depression													.009	.007	.004
13. AM cortisol														.159	.843
14. PM cortisol															-.397
15. Cortisol gradient															

- Eudaimonic measures are highly correlated with each other, but only weakly correlated with other well-being measures

A range of measures

- In the spirit of Ryff (1989): Happiness is everything, or is it?

Results from 1560 Peruvian adults

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1. Log per capita expenditure		.896	.599	.74	.644	.411	.05	-.098	.065	.028	.297	-.02	.04	-.05	.065
2. Log per capita income			.679	.69	.609	.4	.059	-.101	.081	.071	.311	-.024	.052	-.057	.08
3. Log individual income				.476	.448	.326	.059	-.115	.124	.101	.344	-.141	.035	-.034	.051
4. Household wealth index					.613	.437	.047	-.139	.078	.082	.335	-.061	.026	-.073	.064
5. Subjective poverty						.512	.127	-.164	.128	.063	.331	-.101	.051	-.105	.104
6. Life satisfaction							.25	-.275	.252	.178	.371	-.257	.018	-.092	.067
7. Positive affect								-.664	.161	.164	.163	-.373	-.005	-.047	.021
8. Negative affect									-.211	-.149	-.2	.498	.002	.027	-.013
9. Autonomy										.457	.466	-.284	.035	-.009	.038
10. Relatedness											.524	-.276	.017	.031	-.001
11. Competence												-.313	-.039	-.048	-.01
12. Depression													.009	.007	.004
13. AM cortisol														.159	.343
14. PM cortisol															-.397
15. Cortisol gradient															

- Among daily cortisol measures, the gradient is generally the most correlated with other dimensions, although overall low

Comparing across regions

Lima

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1. Log per capita expenditure		.847	.477	.582	.312	.155	.059	-.087	.153	.131	.198	-.021	.088	.025	.074
2. Log per capita income			.58	.593	.324	.171	.06	-.084	.157	.172	.208	-.062	.109	.031	.092
3. Log individual income				.311	.202	.14	.004	-.059	.189	.208	.341	-.134	.071	.058	.042
4. Household wealth index					.379	.243	.032	-.074	.19	.203	.197	-.066	.071	.034	.053
5. Subjective poverty						.35	.151	-.143	.258	.241	.242	-.132	.056	-.041	.074
6. Life satisfaction							.29	-.207	.428	.258	.28	-.331	.05	-.018	.058
7. Positive affect								-.565	.221	.238	.176	-.355	.04	.072	.005
8. Negative affect									-.24	-.222	-.156	.572	.003	-.055	.029
9. Autonomy										.505	.546	-.346	.025	.008	.021
10. Relatedness											.581	-.321	.016	.065	-.015
11. Competence												-.36	-.061	.002	-.061
12. Depression													.021	-.028	.034
13. AM cortisol														.202	.884
14. PM cortisol															-.28
15. Cortisol gradient															

Sierra Central

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1. Log per capita expenditure		.761	.328	.349	.407	.1	-.057	.045	.027	-.084	.002	.104	.005	.027	-.012
2. Log per capita income			.505	.223	.352	.12	-.022	.016	.052	-.006	.078	.116	.011	-.012	.017
3. Log individual income				.109	.221	.124	.052	-.047	.091	.006	.116	-.12	-.005	-.023	.009
4. Household wealth index					.283	.132	-.037	-.045	-.002	-.025	.143	.028	-.031	-.06	.009
5. Subjective poverty						.308	.074	-.095	.073	-.082	.13	-.03	.061	-.074	.098
6. Life satisfaction							.211	-.219	.145	.135	.258	-.186	-.019	-.084	.033
7. Positive affect								-.716	.11	.1	.125	-.387	-.047	-.116	.028
8. Negative affect									-.195	-.095	-.187	.447	.004	.058	-.031
9. Autonomy										.406	.435	-.22	.047	-.023	.055
10. Relatedness											.515	-.227	.017	.007	.011
11. Competence												-.257	-.026	-.038	.
12. Depression													-.004	.024	-.018
13. AM cortisol														.13	.806
14. PM cortisol															-.483
15. Cortisol gradient															

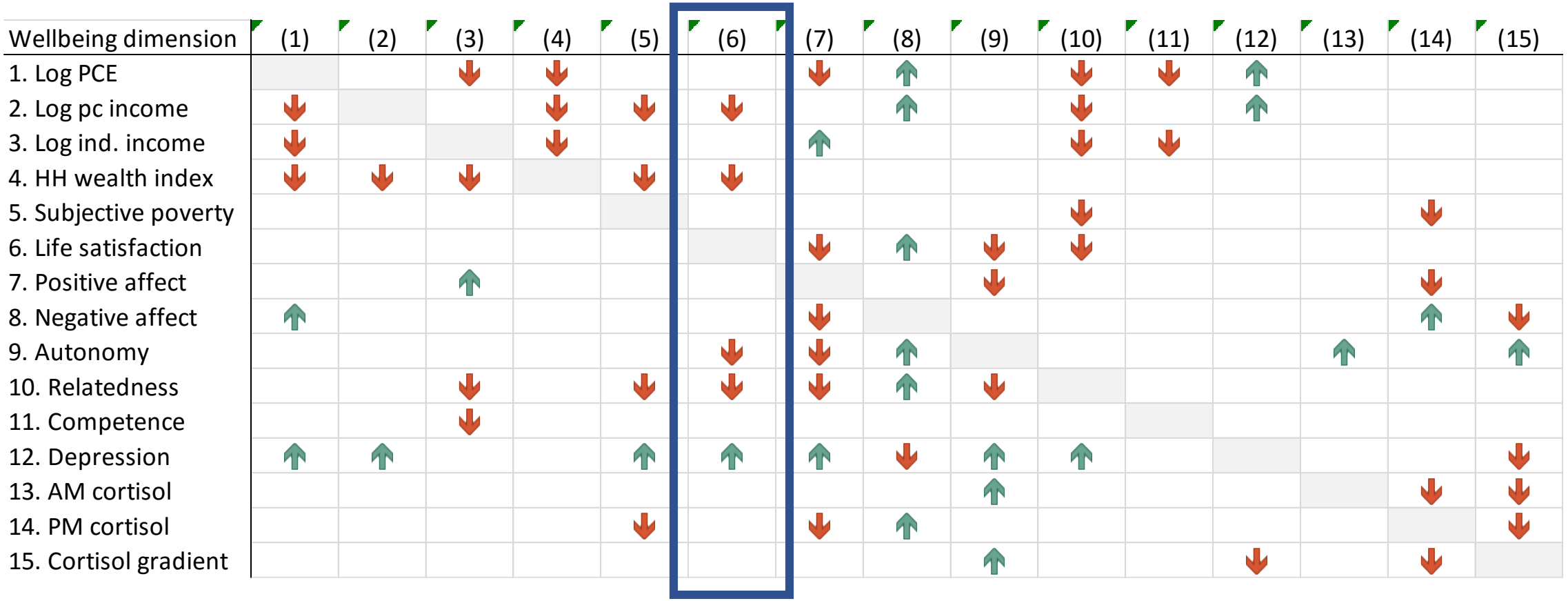
- Notable differences, especially eudaimonic and cortisol much more correlated in urban Lima than remote Sierra Central
- WRT gender, little difference in associations except for cortisol

Regional differences in wellbeing associations

Wellbeing dimension	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1. Log PCE			↓	↓			↓	↑		↓	↓	↑			
2. Log pc income	↓			↓	↓	↓		↑		↓		↑			
3. Log ind. income	↓			↓			↑			↓	↓				
4. HH wealth index	↓	↓	↓		↓	↓									
5. Subjective poverty										↓				↓	
6. Life satisfaction							↓	↑	↓	↓					
7. Positive affect			↑						↓					↓	
8. Negative affect	↑						↓							↑	↓
9. Autonomy						↓	↓	↑					↑		↑
10. Relatedness			↓		↓	↓	↓	↑	↓						
11. Competence			↓												
12. Depression	↑	↑			↑	↑	↑	↓	↑	↑					↓
13. AM cortisol									↑					↓	↓
14. PM cortisol					↓		↓	↑							↓
15. Cortisol gradient									↑			↓		↓	

- In bivariate regressions of dimension *i* regressed on dimension *j*, interacted with region, many interaction terms are significant at p<.10

Regional differences in wellbeing associations



- One example: LS which is significantly less associated with income, wealth, eudaimonic measures in rural areas
- Similar analysis for gender shows far fewer influential interactions

A range of measures, but how do we aggregate?

- Aggregation of different dimensions of SWB into overall welfare measure remains a challenge
  - In a consumption context, $\Delta u \approx \sum_1^M p_m \Delta c_m$
  - In broader notions of well-being, $\Delta u \approx \sum_1^J \frac{\partial u(\boldsymbol{w})}{\partial w_j} \Delta w_j$
  - No observable prices (used to proxy for marginal utilities) in SWB space
  - Often attempts to aggregate rely on ad-hoc weights

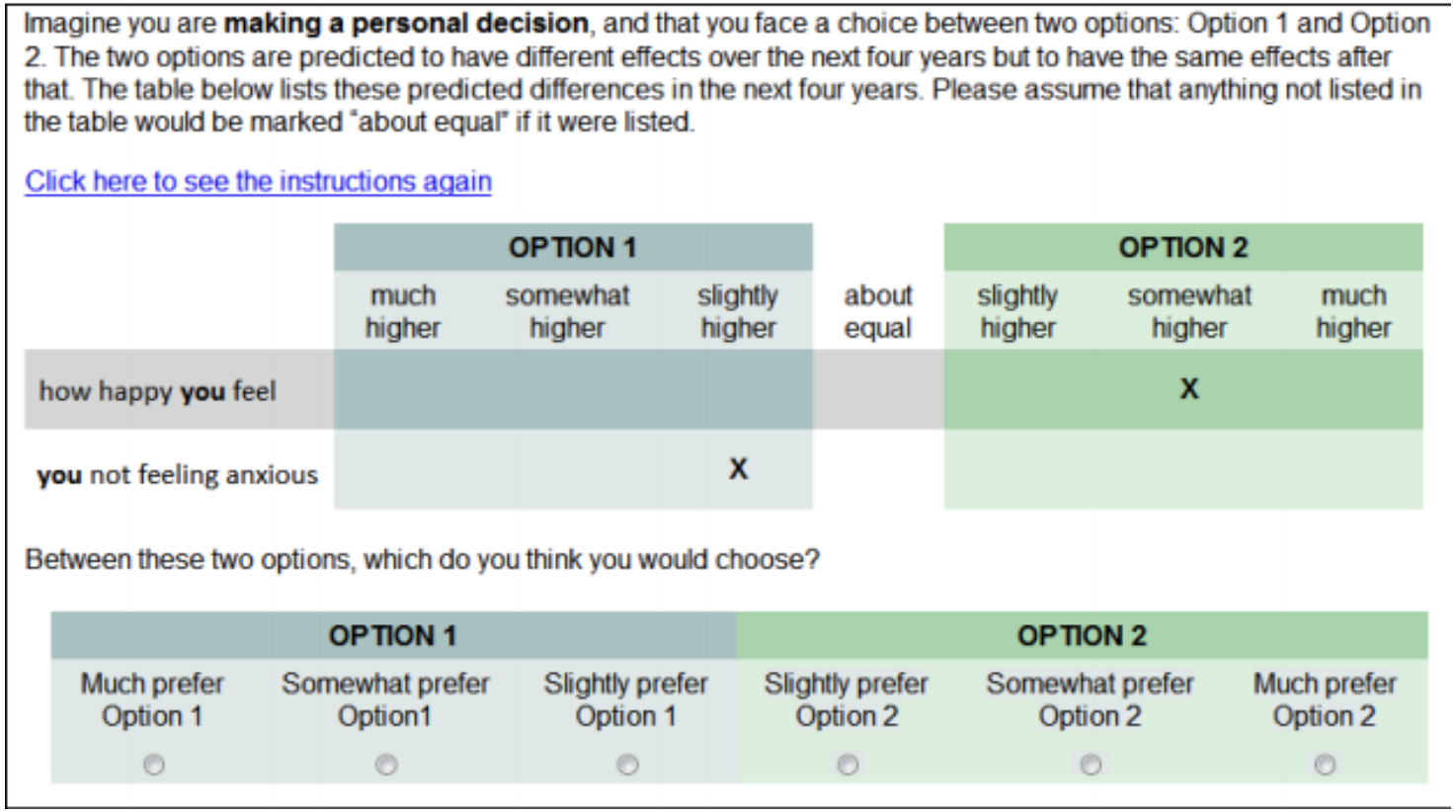
- A relatively new approach to aggregation using stated preferences of trade-offs between distinct SWB dimension
  - Repeated presentation of personal choice scenarios on tablets to estimate marginal trade-offs and generate stated preference weights across dimensions of SWB

Elicitation of tradeoffs

- Benjamin et al. (2014) present framework that elicits stated preferences of trade-offs between different dimensions of SWB through hypothetical choice scenarios

•Goal: generate aggregation weights to explore wellbeing indices and consistency within and across sites

•22 aspects of 11 dimensions stipulated, roughly mapped to the WB measures above, plus others



Imagine you are **making a personal decision**, and that you face a choice between two options: Option 1 and Option 2. The two options are predicted to have different effects over the next four years but to have the same effects after that. The table below lists these predicted differences in the next four years. Please assume that anything not listed in the table would be marked "about equal" if it were listed.

Click here to see the instructions again

	OPTION 1				OPTION 2		
	much higher	somewhat higher	slightly higher	about equal	slightly higher	somewhat higher	much higher
how happy **you** feel						X	
you not feeling anxious			X				

Between these two options, which do you think you would choose?

OPTION 1			OPTION 2		
Much prefer Option 1	Somewhat prefer Option1	Slightly prefer Option 1	Slightly prefer Option 2	Somewhat prefer Option 2	Much prefer Option 2
○	○	○	○	○	○

Elicited weights in the case of Peru, dimensions considered

Aspect (English)	Dimension
A better support network	Financial security
More financial security	
More freedom to decide how to live life	Autonomy
More control over life	
A more important role in society	Competency
More competent in activities you value	
More happiness	Positive affect
Less stress	
More satisfaction with life	Life satisfaction
More worthwhile activities	

Aspect (English)	Dimension
More income than those around you	Relative status
Higher social status	
More money to buy the things you find important	Material wellbeing
A higher material level of living	
Increased longevity	Physcial health
Better physical health	
Better physical security	Physical security
Less violence and crime	
More education	Public services
Better public services	
Better relations with family and friends	Relatedness
More people in community who treat you well	

Relative weights of 11 dimensions

Full sample		*Lima*		*Sierra Central*	
Dimension	Relative weight	Dimension	Relative weight	Dimension	Relative weight
Physcial health	0.80	Physcial health	0.81	Physcial health	0.79
Positive affect	0.73	Physical security	0.77	Positive affect	0.75
Physical security	0.69	Positive affect	0.70	Relatedness	0.73
Relatedness	0.68	Life satisfaction	0.68	Public services	0.70
Life satisfaction	0.68	Relatedness	0.63	Life satisfaction	0.68
Financial security	0.62	Financial security	0.62	Financial security	0.62
Public services	0.61	Competency	0.57	Physical security	0.61
Competency	0.55	Public services	0.52	Competency	0.52
Autonomy	0.49	Autonomy	0.50	Material wellbeing	0.51
Material wellbeing	0.46	Material wellbeing	0.40	Autonomy	0.48
Relative status	0.32	Relative status	0.27	Relative status	0.38

- Security concerns – physical health, physical security, financial security – predominate the top choices
- Autonomy, resources “for their own sake”, relative status rate the lowest

Relative weights of 11 dimensions

Full sample		*Lima*		*Sierra Central*	
Dimension	Relative weight	Dimension	Relative weight	Dimension	Relative weight
Physcial health	0.80	Physcial health	0.81	Physcial health	0.79
Positive affect	0.73	Physical security	0.77	Positive affect	0.75
Physical security	0.69	Positive affect	0.70	Relatedness	0.73
Relatedness	0.68	Life satisfaction	0.68	Public services	0.70
Life satisfaction	0.68	Relatedness	0.63	Life satisfaction	0.68
Financial security	0.62	Financial security	0.62	Financial security	0.62
Public services	0.61	Competency	0.57	Physical security	0.61
Competency	0.55	Public services	0.52	Competency	0.52
Autonomy	0.49	Autonomy	0.50	Material wellbeing	0.51
Material wellbeing	0.46	Material wellbeing	0.40	Autonomy	0.48
Relative status	0.32	Relative status	0.27	Relative status	0.38

- Generally similar across the two settings , with two divergences physical security/crime ranked 2nd in Lima and 7th in SC, while Public Services rank 8th in Lima and 4th in SC

Endowment effects on elicited trade-offs

Dimension i		Endowment effect: an abundance of dimension j																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	A better support network																						
2	More financial security						▲														▼		
3	More freedom to decide how to live life					▲					▲												
4	More control over life			▼					▼		▲									▲			
5	A more important role in society					▲	▲	▲		▲	▲	▲	▲	▲	▲		▲			▲			
6	More competent in activities you value			▼		▲	▲	▲			▲									▲			
7	More happiness									▼	▲												
8	Less stress					▲	▲		▼		▲												
9	More satisfied with life																				▼		
10	More worthwhile activities		▲			▲	▲					▲	▲	▲	▲			▼		▲			
11	More income than those around you	▼											▼								▼		
12	Higher social status	▼					▲	▲			▲										▼		
13	More money to buy the things you find important	▼											▼		▼					▼	▼		
14	A higher material level of living						▲														▼		
15	Increased longevity								▼												▼		
16	Better physical health																▼	▼	▼				
17	Better physical security		▲				▲					▲		▲	▲					▲			
18	Less violence and crime					▲	▲	▲	▼		▲	▲	▲	▲	▲			▼	▼	▲	▲		
19	More education				▲	▲	▲	▲		▲	▲			▲						▲			▲
20	Better public services	▼	▼			▼		▲				▼	▼	▼	▼				▲	▼	▼		
21	Better relations with family and friends						▲	▲		▲											▼		
22	More people in community who treat you well		▼			▲								▼						▼	▼		

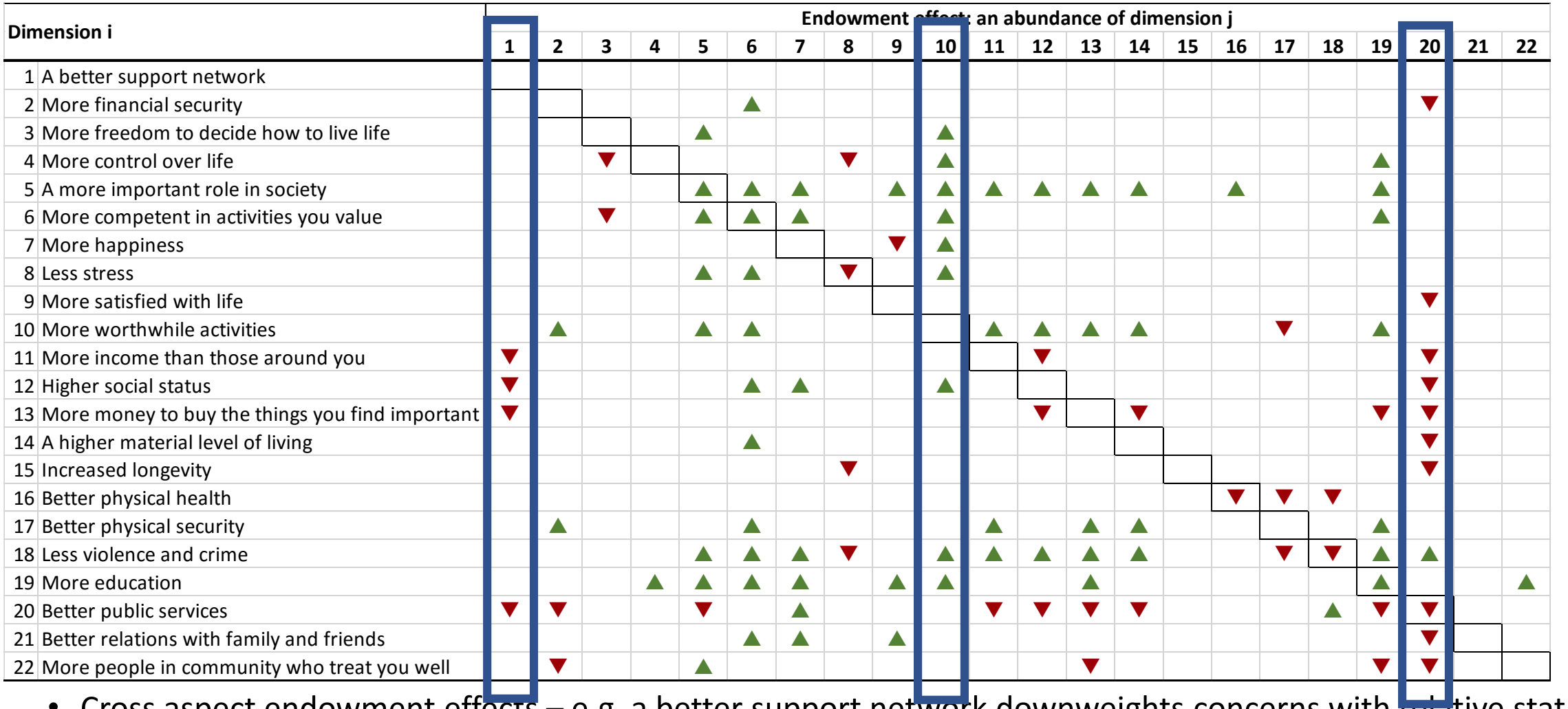
- Regressions of aspect *i* on choice vector, interacted with endowments of each aspect, many interaction terms are significant at p<.10

Endowment effects on elicited trade-offs

Dimension i		Endowment effect: an abundance of dimension j																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	A better support network																						
2	More financial security						▲														▼		
3	More freedom to decide how to live life					▲					▲												
4	More control over life			▼					▼		▲									▲			
5	A more important role in society					▲	▲	▲		▲	▲	▲	▲	▲	▲		▲			▲			
6	More competent in activities you value			▼		▲	▲	▲			▲									▲			
7	More happiness									▼	▲												
8	Less stress					▲	▲		▼		▲												
9	More satisfied with life																				▼		
10	More worthwhile activities		▲			▲	▲					▲	▲	▲	▲			▼		▲			
11	More income than those around you	▼											▼								▼		
12	Higher social status	▼					▲	▲			▲										▼		
13	More money to buy the things you find important	▼											▼		▼					▼	▼		
14	A higher material level of living						▲														▼		
15	Increased longevity								▼												▼		
16	Better physical health																▼	▼	▼				
17	Better physical security		▲				▲					▲		▲	▲					▲			
18	Less violence and crime					▲	▲	▲	▼		▲	▲	▲	▲	▲			▼	▼	▲	▲		
19	More education				▲	▲	▲	▲		▲	▲			▲						▲			▲
20	Better public services	▼	▼			▼		▲				▼	▼	▼	▼				▲	▼	▼		
21	Better relations with family and friends						▲	▲		▲											▼		
22	More people in community who treat you well		▼			▲								▼						▼	▼		

- Own aspect endowment effects – better health, better public services, less stress, and less crime leads to downweighting these aspects, while education and beliefs in competency upweights these aspects

Endowment effects on elicited trade-offs



- Cross aspect endowment effects – e.g. a better support network downweights concerns with relative status and public services, engaged in worthwhile activities upweights many eudaimonic aspects including autonomy and competency, better public services downweights material concerns and financial security

A comprehensive wellbeing measure with welfare consistent comparisons across settings?

- Access to non-market goods varies across setting, creating challenges to consistency of money-metric measures
  - Revealed preference not always suitable for welfare consistency
- Elicited welfare measure associations not stable across setting, and trade-offs partly a function of endowments
  - Direct elicitations also not always suitable
- Work on bio-metric measures is nascent, with unclear mappings to traditional economic wellbeing constructs
- A comprehensive measure that enables welfare consistent comparisons across settings remains elusive

Most and least selected aspects

Full sample		*Lima*		*Sierra Central*	
Aspect	Relative weight	Aspect	Relative weight	Aspect	Relative weight
Better physical health	0.85	Better physical health	0.89	Better physical health	0.81
More happiness	0.74	Less violence and crime	0.80	Better public services	0.80
Increased longevity	0.72	More happiness	0.70	More happiness	0.79
More satisfaction with life	0.72	More satisfaction with life	0.70	Better relations with family and friends	0.77
Better relations with family and friends	0.71	Better physical security	0.69	Increased longevity	0.75
Less violence and crime	0.69	Increased longevity	0.69	More satisfaction with life	0.74
More freedom to decide how to live life	0.49	More money to buy the things you find important	0.49	More freedom to decide how to live life	0.49
A more important role in society	0.49	More control over life	0.47	More income than those around you	0.48
More control over life	0.46	Better public services	0.37	A more important role in society	0.47
More income than those around you	0.41	More income than those around you	0.35	More control over life	0.45
A higher material level of living	0.31	A higher material level of living	0.26	A higher material level of living	0.36
Higher social status	0.20	Higher social status	0.15	Higher social status	0.25