Eliciting, applying and exploring multidimensional welfare weights: evidence from the field

Discussion of the Lucio Esposito and Enrica Chiappero-Martinetti (E C-M) paper

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Overview of Paper

- very nice study; extensive references to a range of strands in the literature
- presumes index is based on multiple dimensions, with weighted aggregation into single summary measure
- addresses two main questions
  - what happens when samples of several groups are asked about how they would weight the various dimensions?
  - if there is variation in the resulting dimension weights, what difference does this make to the aggregate index?

Main Steps in Constructing a Summary Index

- choose a topic, e.g. population well-being
- select domains that are the key "constituents" or determining factors
  - e.g. education, health, housing, personal safety
- within each domain, select one or more indicators
  - e.g. for health: health status, infant mortality, health-adjusted life expectancy
- for each indicator, select a measure
  - e.g. for health status: self-reported, a generic measure like HUI or EQ-5D
- for the resulting set of measures, select an aggregation formula

or give up and use a "dashboard" (or flower petals per OECD)

OECD's Flower Petals – Visualizing a Dashboard

E C-M Focus – Relative Weighting of Domains (I)

- choice of dimensions and measures – “convenience sample”, in order to apply weights to an existing pair of surveys
- distinguish “direct” and “indirect” approaches
  - focus on direct approaches using representative population samples
- direct sample methods discussed
  - Likert scale on each domain, one at a time
  - is the domain a “necessity”, one domain at a time
  - series of pairwise domain comparisons of “importance”, including scaling
  - “budget allocation technique” – consider all domains together and distribute a fixed budget of “importance” points

E C-M Focus – Relative Weighting of Domains (II)

- elicit weights from 3 distinct sample populations+++
  - students, “development experts”, and general population
- questionnaire design **pre-tested** +++
- 96% **response rate** for students +++
- post- questionnaire **follow-up** re comprehension +++
- student sample split for “poverty” versus “well-being” **framing** +++
- novel and careful approach to weight elicitation in general “heterogeneous” sample, using pictorial **flashcards** +++

What Was Found Eliciting Weights (Students)

- (implicit) individuals' weights are heterogeneous
- framing as "wellbeing" versus "poverty" matters / highly significant
  - if wellbeing rather than poverty framing health ↑, education & housing ↓
- results are robust to two different specifications (i.e. added controls)
- most controls statistically insignificant – age, gender, experiences of victimization and illness, several socio-economic status variables
- unpublished: only control strongly significant = "perceived income"
  - being from a higher (???) income background → health ↑, education & housing ↓

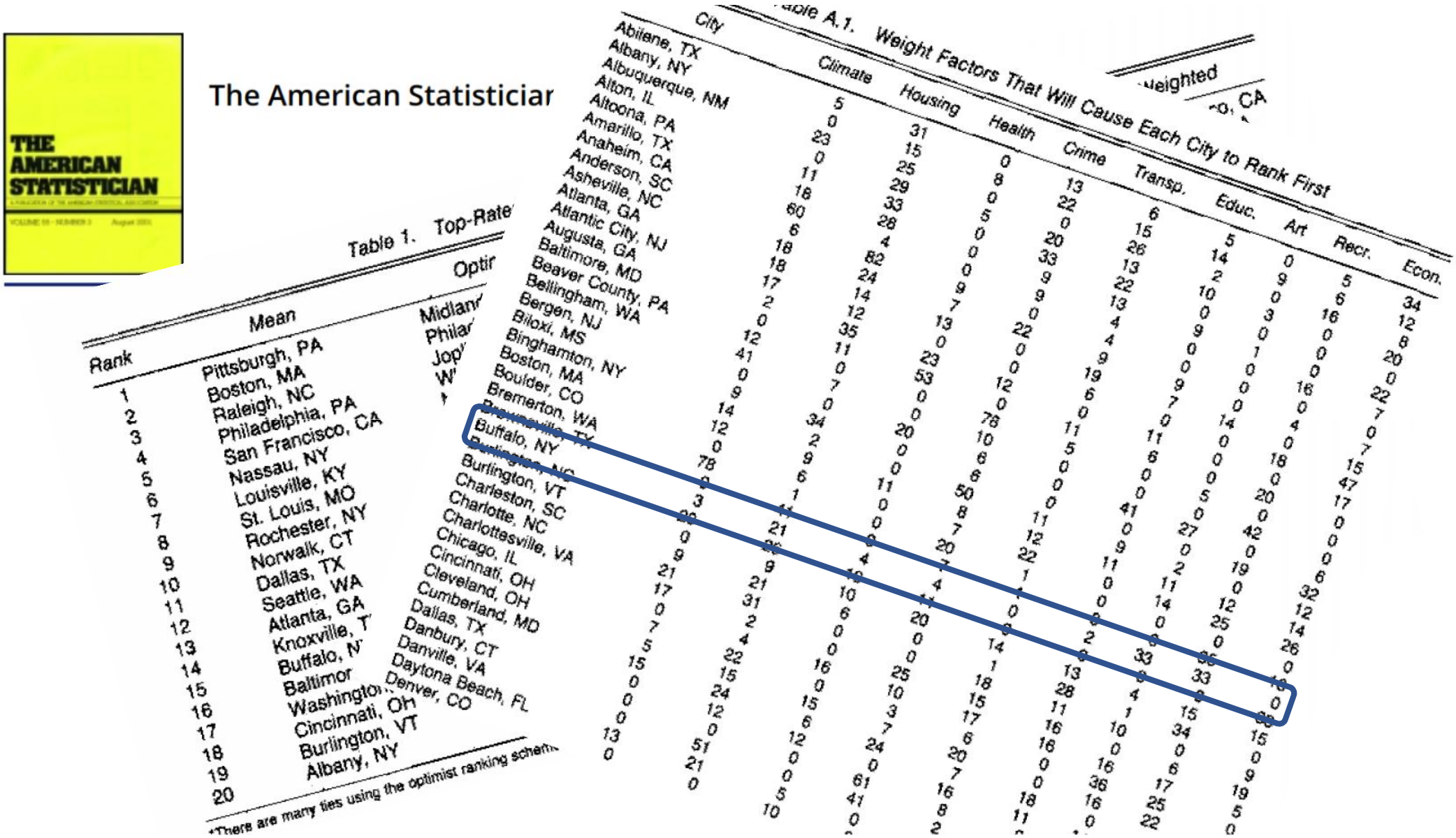

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Table 1. Top-Rate

Rank	Mean	Optir
1	Pittsburgh, PA	Midlan
2	Boston, MA	Philar
3	Raleigh, NC	Jop
4	Philadelphia, PA	W
5	San Francisco, CA	
6	Nassau, NY	
7	Louisville, KY	
8	St. Louis, MO	
9	Rochester, NY	
10	Norwalk, CT	
11	Dallas, TX	
12	Seattle, WA	
13	Atlanta, GA	
14	Knoxville, T	
15	Buffalo, N	
16	Baltimor	
17	Washingto	
18	Cincinnati, Oh	
19	Burlington, VT	
20	Albany, NY	

*There are many ties using the optimist ranking schem

Table A.1. Weight Factors That Will Cause Each City to Rank First

City	Climate	Housing	Health	Crime	Transp.	Educ.	Art	Recr.	Econ.	Weighted CA
Abilene, TX	5	31	0	13	6	5	0	5	34	
Albany, NY	0	15	8	22	15	14	9	6	12	
Albuquerque, NM	23	25	0	0	26	2	0	16	8	
Alton, IL	0	29	5	20	13	10	3	0	20	
Altoona, PA	11	33	0	33	22	0	0	4	0	
Amarillo, TX	18	28	0	9	13	9	1	0	22	
Anaheim, CA	60	4	9	0	4	0	0	0	7	
Anderson, SC	6	82	7	22	9	14	14	0	15	
Asheville, NC	18	24	0	0	19	0	0	0	47	
Atlanta, GA	17	14	13	12	6	9	5	0	17	
Atlantic City, NJ	2	12	0	0	0	0	0	0	0	
Augusta, GA	0	35	23	0	11	0	0	0	6	
Baltimore, MD	12	11	53	11	0	0	0	0	32	
Beaver County, PA	41	0	0	0	41	0	0	0	12	
Bellingham, WA	0	7	20	0	0	0	0	0	14	
Bergen, NJ	9	0	0	0	0	0	0	0	26	
Biloxi, MS	14	34	0	11	11	0	0	0	0	
Binghamton, NY	12	2	11	5	0	0	0	0	22	
Boston, MA	0	9	0	0	0	0	0	0	7	
Boulder, CO	78	6	0	11	41	0	0	0	15	
Bremerton, WA	3	1	0	0	0	0	0	0	47	
[illegible], TX	26	21	0	0	9	0	0	0	17	
Buffalo, NY	0	9	0	0	11	0	0	0	0	
[illegible], NC	9	21	0	0	0	0	0	0	0	
Burlington, VT	21	31	0	0	0	0	0	0	6	
Charleston, SC	0	2	0	0	0	0	0	0	32	
Charlotte, NC	7	4	0	0	0	0	0	0	12	
Charlottesville, VA	5	22	0	0	0	0	0	0	14	
Chicago, IL	15	15	0	0	0	0	0	0	26	
Cincinnati, OH	0	24	0	0	0	0	0	0	0	
Cleveland, OH	0	12	0	0	0	0	0	0	15	
Cumberland, MD	0	0	0	0	0	0	0	0	0	
Dallas, TX	0	5	0	0	0	0	0	0	9	
Danbury, CT	13	10	0	0	0	0	0	0	19	
Danville, VA	0	0	0	0	0	0	0	0	5	
Daytona Beach, FL	0	0	0	0	0	0	0	0	0	
Denver, CO	0	0	0	0	0	0	0	0	0	

“Dimension Paradox”

- considerable discussion of possibility that individuals with differing weights and differing levels on component dimension measures could place themselves in opposite rank order
- authors reject idea that paradox is merely a theoretical issue; it is real
- propose instead that weights do vary systematically with “achievements” =? socio-economic position
- i.e. aggregation across dimensions at individual level = individual preference function is **non-linear** within dimensions

But Think Maslow's Hierarchy of Needs

- suppose the domains for well-being are
  - air to breathe
  - water to drink
  - clothing and shelter to maintain body temperature
  - food to eat
  - people with whom to converse
- linear aggregation implies that when there is no air to breathe, but lots of convivial friends, we can have quite high levels of well-being

Ridiculous!

unless all measures have values in a part of the space where non-linearities are unimportant, e.g. (maybe) CPI, where variations in expenditure baskets may be ignorable, and/or price changes all highly correlated

Dealing With Individual Heterogeneity and Non-Linearity

- yes, individuals are heterogeneous, both in multi-dimensional status, and in their weights
- “that’s life in the big city” / welcome to the real world
- if anything, this observation is akin to an “impossibility theorem” for acceptable aggregation and “construct validity” for summary index
- so back to dashboard (e.g. OECD flower petals) + “drill down” (easy with clickable user interfaces) + visualization for distributional detail

OECD's Flower Petals – Visualizing a Dashboard