Building Multi-Source Databases for Comparative Analyses

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WORKSHOP
Complexity in Society: from Indicators Construction to their Synthesis

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Academic (but not only) community
SEMPLIFICARE È PIÙ DIFFICILE
(Bruno Munari)

making things complicated is easy, simplifying things is difficult
SEMPLIFICARE È PIù DIFFICILE
(Bruno Munari)

making things complicated is easy, simplifying things is difficult

what cannot be said in few words cannot be said in many
There are no good or bad things ... there are things done in a good way and things done in a bad way
TopiC

• considered a “niche field” from a scientific point of view

• never missed in any conference, workshop, seminar on measuring socio-economic dimensions during the last decades
1. Construction
2. Use
3. Communication
Outline

1. Construction
2. Use
3. Communication
Construction

(1) a normative exercise
Construction

(1) a normative exercise

Indicators construction between data-driven and concept-driven approach
Construction

(1) a normative exercise

Indicators construction

data-driven $\rightarrow$ more objectivity
Construction

(1) a normative exercise

Indicators construction

data-driven $\rightarrow$ more objectivity

Does respect for data imply intellectual passivity? Is that objectivity?
Construction

(1) a normative exercise

Indicators construction

measuring through definition ↔ concept-driven

In order to start any measurement process, a crucial guiding principle should be identified ...
In social sciences, where the concept of “indicator” was born, the measuring process requires:

- a robust *conceptual definition*
- a consistent *collection of observations*
- a consequent *analysis of the relationship* between observations and defined concepts.
Construction

(1) a normative exercise

Indicator

↓

what relates concepts to reality through observation
Construction

(1) a normative exercise

Indicator

↓

not

a simply crude statistical information

but

a measure organically connected to a conceptual model
Indicators should be developed and managed so that they ...

... represent different aspects of the reality,
... picture the reality in an interpretable way, and
... allow meaningful stories to be told
Developing indicators

(1) a normative exercise

RISK

lack of any logical cohesion and consistency
deforming reality through distorted results

(hidden – sometime - by using and applying sophisticated procedures and methods)
Developing indicators

(1) a normative exercise

normative nature of the selection of indicators cannot be denied

the process contains a “subjective” component
Developing indicators

(1) a normative exercise

normative nature of the selection of indicators cannot be denied

the process contains a “subjective” component

GDP is the most important example of failing in using a statistics as an indicator
(2) Dealing with complexity
(2) Dealing with complexity

The reality is complex with reference to

(A) structure of values
Functioning and capability to select goods and services that one desires

Normative ideals

Subjective experiences

Income considered as a mean to achieve an acceptable standard of living

set of characteristics inspired by normative aims, grounded in moral values or policy goals

Individual’s cognitive and affective reactions to his/her whole life (or specific domains) and societies
Construction

(2) Dealing with complexity

The reality is complex with reference to

(A) STRUCTURE OF VALUES

(B) OBSERVATIONAL PERSPECTIVES
GOALS

¬ sustainability
¬ quality of life
¬ well-being

CON条IONS

✓ availability of resources
✓ distribution of resources
✓ impact of policies
✓ ...

PROCESSES

growth
progress
development
...

...
Construction

(2) Dealing with complexity

The reality is complex with reference to

(A) Structure of values

(B) Observational perspectives

(C) Points of observation
individuals
↓
Quality of life

resources approach
capabilities approach
subjective well-being approach
basic needs approach
objective living conditions and subjective well-being approach

societies
↓
Quality of societies

• liveability and quality of nations
• societal integration, solidarity and stability
  o social cohesion
  o social exclusion
  o social capital
• sustainability
• human development
• social quality
(2) Dealing with complexity

Complexity in constructing indicators

- Perspective of observation
Construction

(2) Dealing with complexity

Complexity in constructing indicators

conglomerative $\leftrightarrow$ deprivational
input $\leftrightarrow$ outcome
positive $\leftrightarrow$ negative
benefits $\leftrightarrow$ costs
status $\leftrightarrow$ trends
Construction

(2) Dealing with complexity

 Complexity in constructing indicators
   - Perspective of observation
   - Level of observation
(2) Dealing with complexity

Complexity in constructing indicators

- micro $\leftrightarrow$ macro
- internal $\leftrightarrow$ external
Construction

(2) Dealing with complexity

Complexity in constructing indicators

- Perspective of observation
- Level of observation
- Nature of the observed characteristics
Construction

(2) Dealing with complexity

Complexity in constructing indicators

objective $\leftrightarrow$ subjective
quantitative $\leftrightarrow$ qualitative
Construction

(2) Dealing with complexity

- Complexity in constructing indicators
  - Perspective of observation
  - Level of observation
  - Nature of the observed characteristics
  - Level of dis/aggregation
Construction

(2) Dealing with complexity

Complexity in constructing indicators

- Time frame
- Area sizes
(2) Dealing with complexity

Complexity in constructing indicators

- Perspective of observation
- Level of observation
- Nature of the observed characteristics
- Level of dis/aggregation
- Criteria
(2) Dealing with complexity

Complexity in constructing indicators

- goals
- identifying benchmarks
- reference standards
- ...

Construction
Construction

(2) Dealing with complexity

- Complexity in constructing indicators
  - Perspective of observation
  - Level of observation
  - Nature of the observed characteristics
  - Level of dis/aggregation
  - Criteria
  - Levels of complication
(2) Dealing with complexity

Complexity in constructing indicators

- cold indicators
- hot indicators
- warm indicators
(2) Dealing with complexity

- Perspective of observation
- Level of observation
- Nature of the observed characteristics
- Level of dis/aggregation
- Criteria
- Levels of complication
- Purposes

Complexity in constructing indicators
Construction

(2) Dealing with complexity

 Complexity in constructing indicators
- descriptive
- explicative
- predictive
- normative
- problem-oriented
- evaluating
Construction

(2) Dealing with complexity

- Perspective of observation
- Level of observation
- Nature of the observed characteristics
- Level of dis/aggregation
- Criteria
- Levels of complication
- Purposes
- Governance context

Complexity in constructing indicators
Construction

(2) Dealing with complexity

- public debate
- policy governance
- administrative guidance
(2) Dealing with complexity

- Perspective of observation
- Level of observation
- Nature of the observed characteristics
- Level of dis/aggregation
- Criteria
- Levels of complication
- Purposes
- Governance context

Complexity in constructing indicators
Construction

(2) Dealing with complexity

Consequences of complexity in constructing indicators
(2) Dealing with complexity

Consequences of complexity in constructing indicators

Indicators $\rightarrow$ numbers

????
(2) Dealing with complexity

Consequences of complexity in constructing indicators
An indicator is **not** necessarily a **number**
(2) Dealing with complexity

Consequences of complexity in constructing indicators

An indicator can be an object

able to preserve the complexity by stylizing it
Consequences of complexity in constructing indicators
(2) Dealing with complexity

Consequences of complexity in constructing indicators

This has methodological consequences

↓

what we are going to construct should be an authentic representation of the reality
(2) Dealing with complexity

Consequences of complexity in constructing indicators

This has methodological consequences

\[ \downarrow \]

not a compress / pointfold / pointform representation

\textit{but}
(2) Dealing with complexity

Consequences of complexity in constructing indicators

This has methodological consequences

\[ \downarrow \]

not a compress / pointfold / pointform representation

but

a representation preserving the systemic characteristic of the phenomena

defined by *elements and their relationships*
(2) Dealing with complexity

Consequences of complexity in constructing indicators

This has methodological consequences

↓

from

points (numbers)

to

pattern (simplified shape and structure)
Construction

(2) Dealing with complexity

Consequences of complexity in constructing indicators

This has methodological consequences

\[ \downarrow \]

multidimensionality

should not be considered a noise to be removed

but

should be an intrinsic characteristic of the synthesis
Construction

(2) Dealing with complexity

Consequences of complexity in constructing indicators

This has methodological consequences

↓

This could introduce some incomparabilities
Construction

(2) Dealing with complexity

Consequences of complexity in constructing indicators

ARTS

↓

beautiful examples of constructing synthetic representation do the reality
(2) Dealing with complexity

Consequences of complexity in constructing indicators

ARTS

Pablo Picasso
Construction

(2) Dealing with complexity

Consequences of complexity in constructing indicators

ARTS
Soldati
(Giuseppe Ungaretti)

Si sta come d’autunno sugli alberi le foglie
(staying like in fall the leaves on trees)

Powerful representation of soldiers’ life during the First World War (n.b. the use of metaphors)
(2) Dealing with complexity

Consequences of complexity in constructing indicators

Visual complexity

\[ \text{crossroad of different competences} \]

images, words, numbers, arts
(2) Dealing with complexity

Consequences of complexity in constructing indicators

Visual complexity: metaphors

- *three of life*, able to represent hierarchies and classify elements (particularly useful in hierarchical systems)
- *networks*, able to represent diversity, decentralization, non-linearity
Construction

(2) Dealing with complexity

Consequences of complexity in constructing indicators

Visual complexity: metaphors

For example, network visualization may emphasize different aspects (density, organic growth, instability, dynamism) and/or different structure (symmetry, top-down, stable dimensions).
(2) Dealing with complexity

Consequences of complexity in constructing indicators

Visual complexity: perspectives

- representing complex and dynamic data
  - interactive data collection and communication (social data collection)
  - management of continuous data flows (extracting interesting points from the flow)
  - making data more accessible and meaningful
- visualizing priorities
- ambient visualization
- collective intelligence (cybernetics)

(Lima, 2011)
1. Construction
2. Use
3. Communication
(1) Systemic approach

Avoiding the point representation produces many indicators

Using them requires a systemic approach
(1) Systemic approach

Avoiding the point representation produces many indicators

Using them requires a systemic approach

Indicators → bricks of knowledge

SET →
(1) Systemic approach

Avoiding the point representation produces many indicators

Using them requires a systemic approach

Indicators → bricks of knowledge

SYSTEM →
(1) Systemic approach

In other words, indicators should be used as sensors connected to each other, not as separated and schizophrenic elements.
(1) Systemic approach

This is important in the monitoring and reporting exercise but is essential in defining sustainability policies.
(1) Systemic approach

Losing the systemic view is risky
(1) Systemic approach

Losing the systemic view is risky

Sparrow paradox
(1) Systemic approach

Losing the systemic view is risky

Sparrow paradox

**Indicators:** sparrows and wheat $\rightarrow$ highly negatively correlated

**Hypothesis:** possible hunger for humans

**Policy action:** Suppression of sparrows

**Indicators:** sparrow and wheat $\rightarrow$ highly positively correlated (no sparrow and no crop)
(2) Indicators and goals

(Donald) Campbell's Law:

The more any indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor.

Also Charles Goodhart:

When a measure becomes a target it ceases to be a good measure.
(2) Indicators and goals
(2) Indicators and goals

The soft power of numbers and indicators is characteristic of our time.

e.g. PISA process (Program for International Student Assessment)

We should admit that it created a problematic and disputable regime of testing.

These tests are not merely measures. They define new structures of incentives whose consensus should be discussed.
(2) Indicators and goals

Numerical comparison can be valuable.

However...

1. Better numbers do not always correspond with genuine improvement.
2. Different political, cultural, and economic systems may have good reasons to pursue different goals in differently organized systems.
(2) Indicators and goals

Power from Numbers
Yes, but data don’t interpret themselves

We should beware of treating statistics as a technical field, in which statisticians and subject specialists (guided, perhaps, by political leaders), seek the best measures even when they do not correspond to the best outcomes.
(3) Being normative or not

The previous considerations urge the following questions
(3) Being normative or not

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**Complexity:** In front of complexity, should we be normative or not?
(3) Being normative or not

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**Complexity:** In front of complexity, should we be normative or not?

**Dashboard:** is it simply a matter of managing a *flight desk* or should it be a factor of growing in the knowledge but also in the awareness (in other words, lever of change for all the actors involved)?
(3) Being normative or not

The previous considerations urge the following questions:

**Complexity:** In front of complexity, should we be normative or not?

**Dashboard:** Is it simply a matter of managing a *flight desk* or should it be a factor of growing in the knowledge but also in the awareness (in other words, lever of change for all the actors involved)?

**Ranking:** Can we sacrifice the complexity in the name of comparability (which almost always aims at ranking cases, as if we live in a permanent soccer championship)?
1. Construction
2. Use
3. Communication
Are indicators enough?

The previous reflections and observations have many implications:
Communication

Are indicators enough?

The previous reflections and observations have many implications:

- transparent *information system*, aware of complexity
- *education* of the citizens, educated to complexity
- an important apparatus of *data production*
Communication

Are indicators enough?

This means that some institutions play a strategic and important role:

- Media system
- Education and university system
- Official statistics
Are indicators enough?

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- Media system
- Education and university system
- Official statistics

... all should meet social consensus
Final remark
Final remark

If you hope to use indicators and other measures to make the world navigable in simpler terms ...
Final remark

If you hope to use indicators and other measures to make the world navigable in simpler terms ...

... be careful what you wish for.

Trust in Numbers
The Pursuit of Objectivity in Science and Public Life
Many thanks for your attention.

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