Methodologies to integrate subjective and objective information to build well-being indicators

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Introduction

Why this problem?

Introduction

In order to measure societal well-being

a **multidimensional definition**

and

a **comprehensive approach**

is needed.

Introduction

Commission on the Measurement of Economic Performance and Social Progress

Report

(September, 2009)

Joseph E. STIGLITZ, Chair, Columbia University
Amartya SEN, Chair Adviser, Harvard University
Jean-Paul FITOUSSI, Coordinator of the Commission, IEP

a. **Classical GDP Issues**
b. **Quality of Life**
c. **Sustainable Development and Environment**

Introduction

The multidimensional definition requires the observation of different components traditionally classified in terms of

“**objective**” and “**subjective**”

Introdution

Each aspect → reduction of the reality

Necessity to integrate the two “realities”

Integration requires definition of:

- **a proper conceptual framework**
- **a proper measurement model**
- **a consistent approach to manage the complexity**

Defining the conceptual framework

Defining the measurement model

Managing the complexity of the model

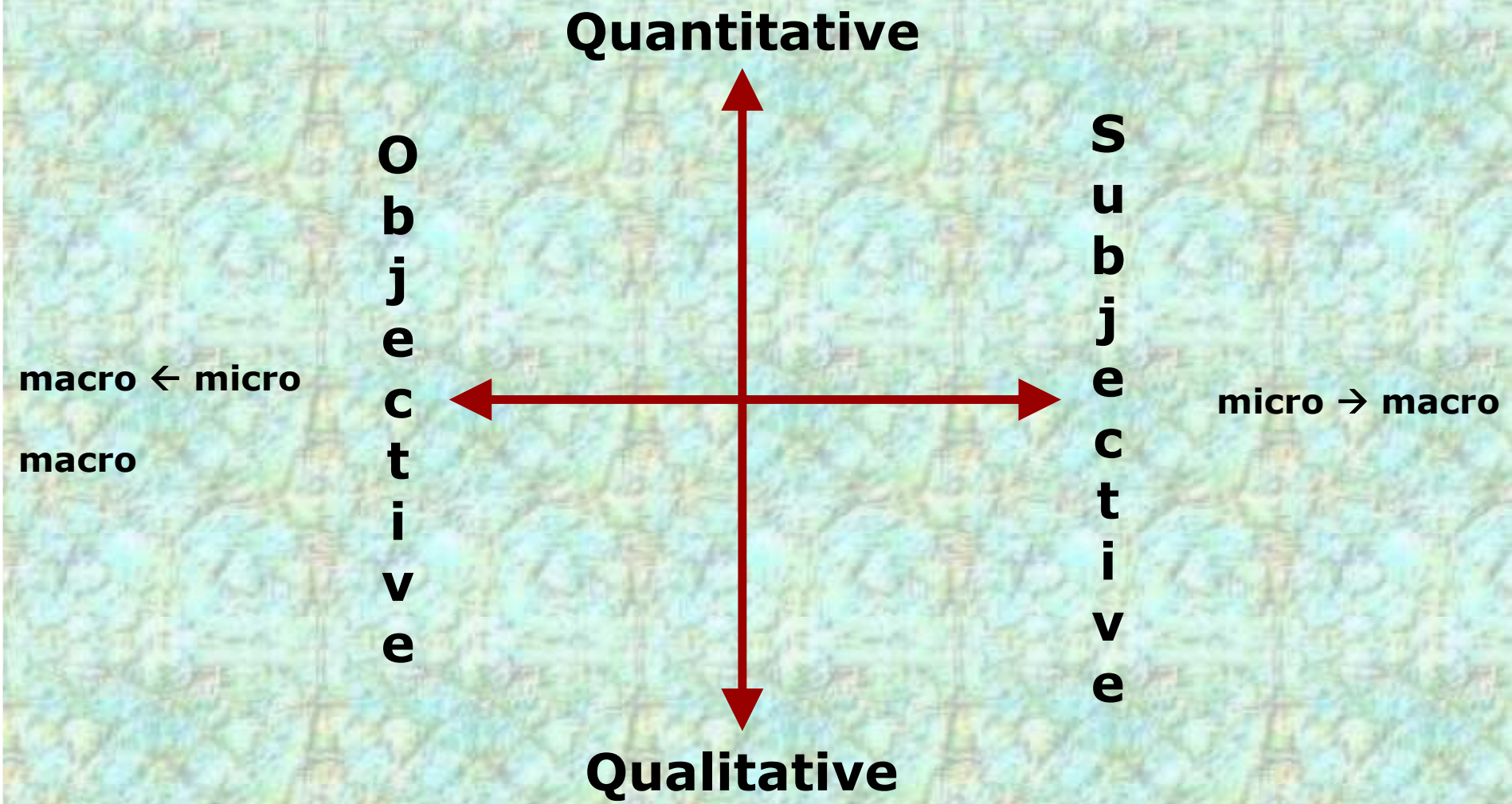
1.

Defining the conceptual framework

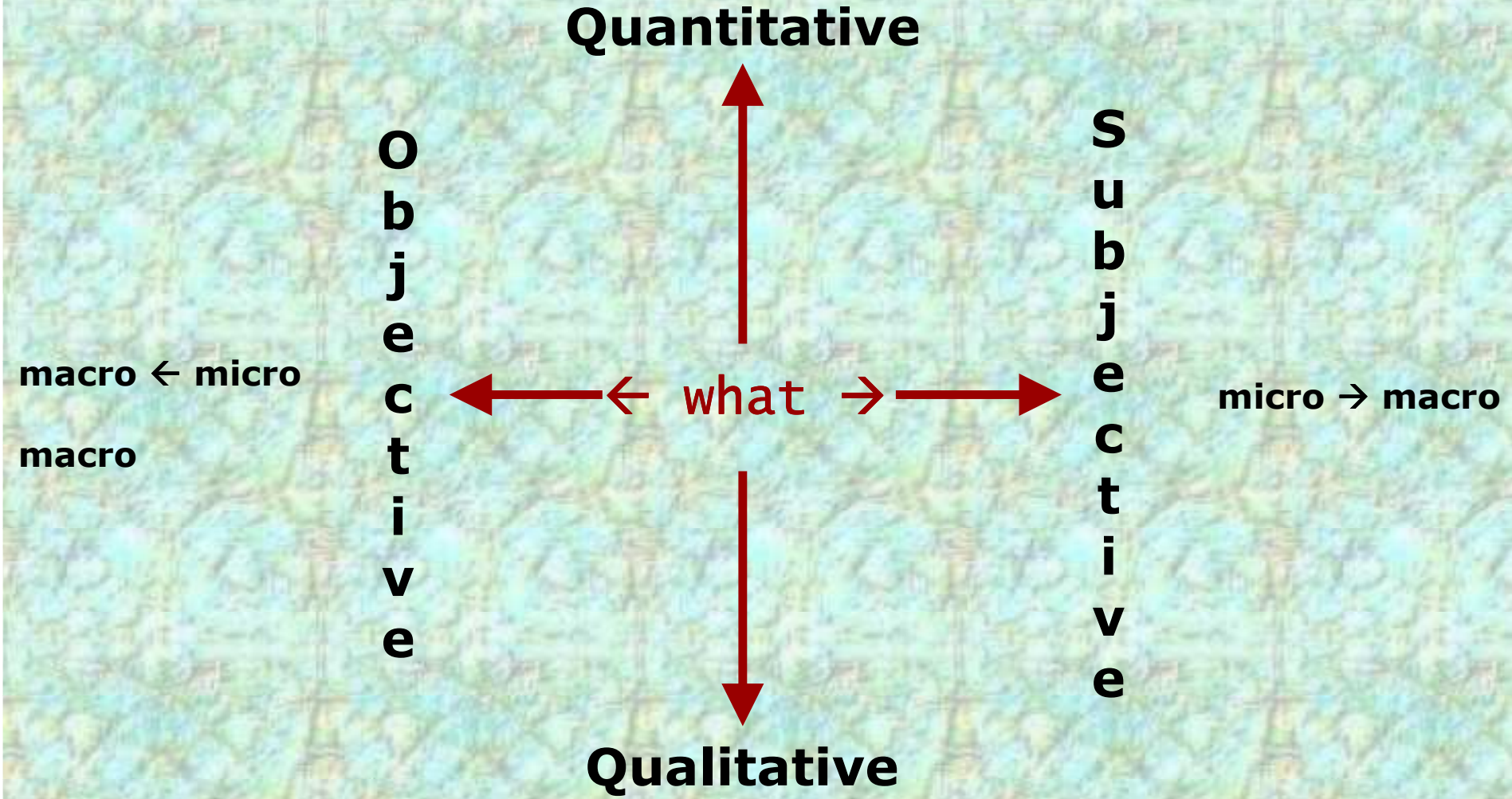
Defining the measurement model

Managing the complexity of the model

Defining the conceptual framework



Defining the conceptual framework



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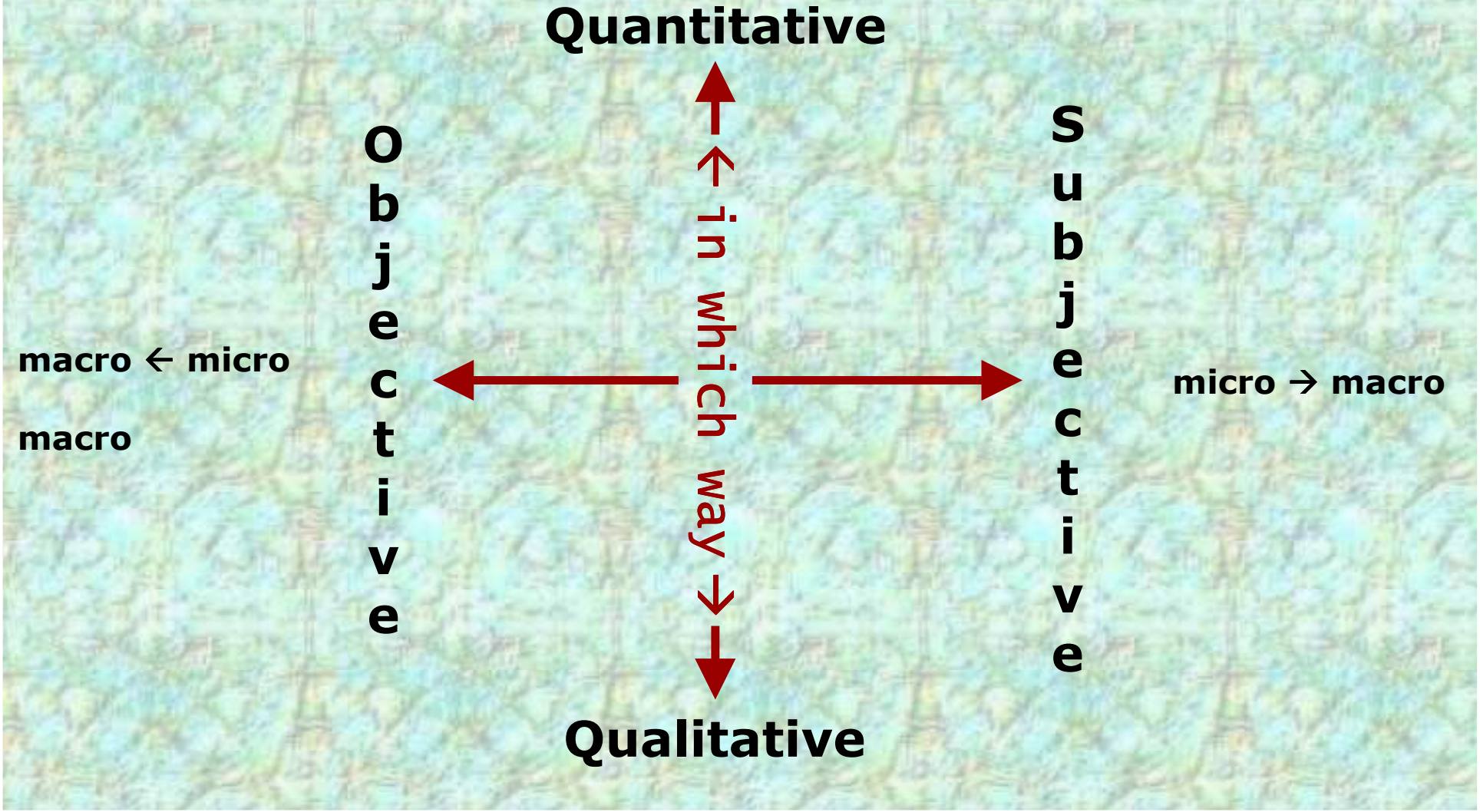


Defining the conceptual framework

Objective characteristics

Micro level	Demographic and socio-economic characteristics	- sex - age - civil/marital status - household - educational qualification	- occupation - geographical mobility (birthplace / residence / domicile) - social mobility (original family status)
	Observable acquired knowledge	- skills - cognition	- know-how - competences
	Individual living conditions (resources)	- standards of living - financial resources (income) - housing	- working and professional conditions and status - state of health
	Social capital	- social relationships - freedom to choose one's lifestyle	
	Observable behaviours and life style	- activities (work, hobby, vacation, volunteering, sport, shopping, etc.)	
		- engagements (familiar, working, social, etc.)	
		- habits (schedule, using of public transport and of means of communication, diet, etc.)	
		- public life (participation, voting, etc)	

Defining the conceptual framework

Objective characteristics

Macro level	**Structure of societies**	**Social conditions**	**Social exclusion**	**Disparities, equalities/inequalities, opportunities**
			Social inclusion	**Informal networks, associations and organisations and role of societal institutions**
		Political setting	**Human rights, democracy, freedom of information, etc.**	
		Institutional setting	**Educational system**	
			Health system	
			Energy system	
		Economical setting	**Income distribution, etc.**	
	Environmental conditions			
	Decisional and institutional processes			

Defining the conceptual framework

Subjective characteristics

Micro level	**Abilities / capacities**	**intellectual**	- **verbal comprehension and fluency** - **numerical facility** - **reasoning (deductive and inductive)** - **ability to seeing relationships**	- **memory (rote, visual, meaningful, etc.)** - **special orientation** - **perceptual speed**
		special	- **mechanical skills** - **artistic pursuits**	- **physical adroitness**
	Personality traits	- **social traits** - **motives**	- **personal conceptions** - **adjustment**	- **personality dynamics**
	Sentiments	**Interests and preference**		
		Values		
		Attitudes	**cognitive → evaluations (beliefs, evaluations opinions)**	
			affective → perceptions (satisfaction and emotional states – i.e., happiness)	
			behavioural intentions	

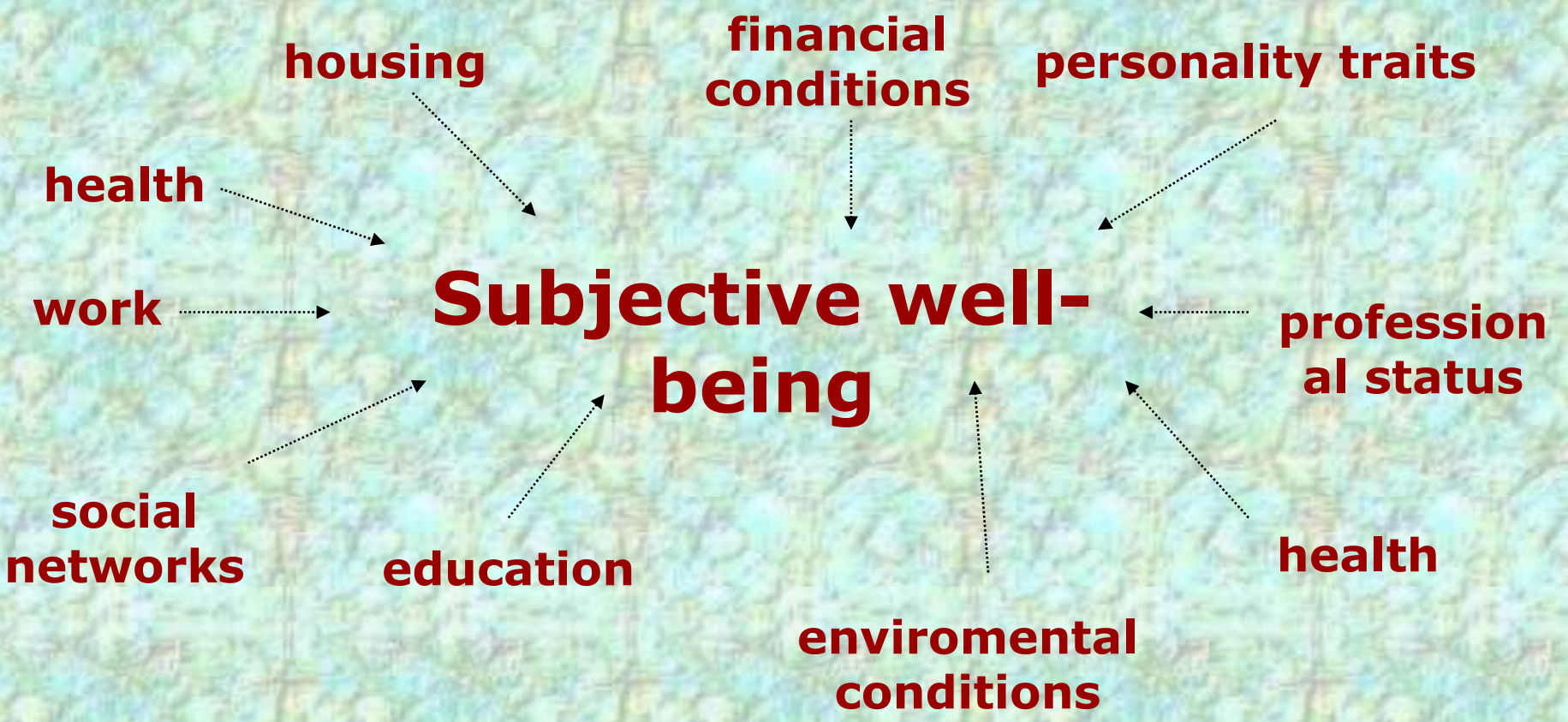
Defining the conceptual framework

Relationships between subjective and objective components

Defining the conceptual framework

- Objective and subjective dimensions interpreted in terms of descriptive and evaluative dimensions
- Objective living conditions explain subjective well-being
- Subjective well-being explained by comparisons
- Multiple discrepancies approach
- Disposition approach
- Causal approaches (bottom-up ←→ top-down ←→ up-down)
- Needs, opportunities and subjective well-being
- Social epidemiology

Defining the conceptual framework



2.

Defining the conceptual framework

Defining the measurement model

Managing the complexity of the model

Developing the indicators

HIERARCHICAL DESIGN	**CONCEPTUAL MODEL**
	↓
	AREAS TO BE INVESTIGATED
	↓
	LATENT VARIABLES
	↓
	ELEMENTARY INDICATORS

Developing the indicators

COMPONENT	QUESTION TO BE ANSWERED	COMPONENT'S DEFINITION
CONCEPTUAL MODEL	Phenomena to be studied	Conceptual model defines the **phenomenon** to be studied, the domains and the general aspects characterizing the phenomenon ↓ **Process of abstraction**
↓ **AREAS/PILLARS TO BE INVESTIGATED**		
↓ **LATENT VARIABLES**		
↓ **ELEMENTARY INDICATORS (E.I.)**		

Developing the indicators

COMPONENT	QUESTION TO BE ANSWERED	COMPONENT'S DEFINITION
CONCEPTUAL MODEL		
↓		
AREAS/PILLARS TO BE INVESTIGATED	⇨ Aspects defining the phenomenon	⇨ Each area represents each **aspect** allowing the phenomenon to be specified consistently with the conceptual model
↓		
LATENT VARIABLES		
↓		
ELEMENTARY INDICATORS (E.I.)		

Developing the indicators

COMPONENT	QUESTION TO BE ANSWERED	COMPONENT'S DEFINITION
CONCEPTUAL MODEL		
AREAS/PILLARS TO BE INVESTIGATED		
LATENT VARIABLES	Elements to be observed	Each variable represents each **element** that has to be observed in order to define the corresponding area. The variable is named **latent** since is not observable directly
ELEMENTARY INDICATORS (E.I.)		

Their definition requires:

- theoretical assumptions (dimensionality)
- empirical statements

Developing the indicators

COMPONENT

QUESTION TO BE ANSWERED

COMPONENT'S DEFINITION

CONCEPTUAL MODEL

↓

AREAS/PILLARS TO BE INVESTIGATED

↓

LATENT VARIABLES

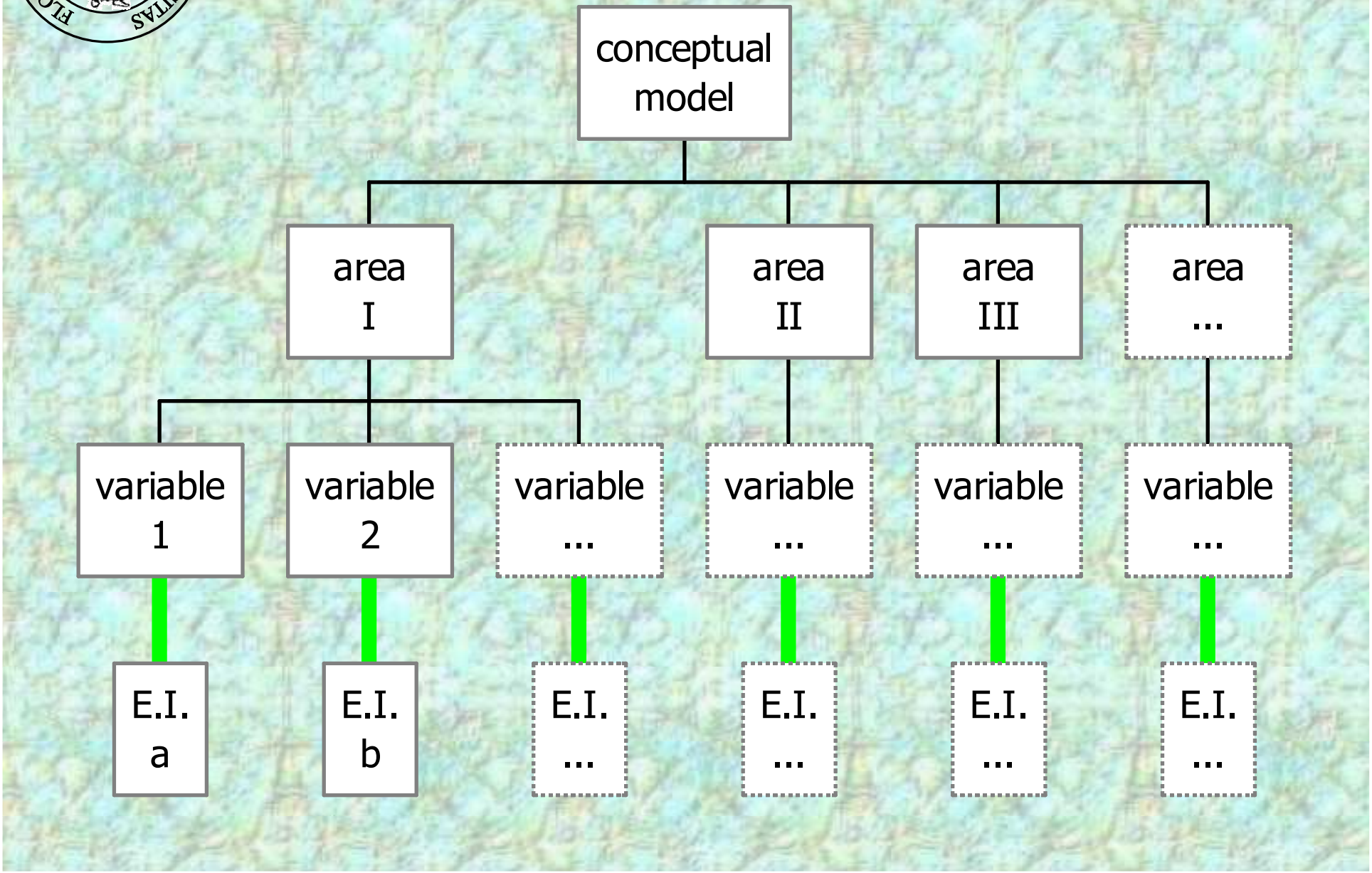
↓

ELEMENTARY INDICATORS (E.I.) ⇨ In which way each element has to be measured ⇨ Each indicator (item, in subjective measurement) represents **what is actually measured** in order to investigate each variable.

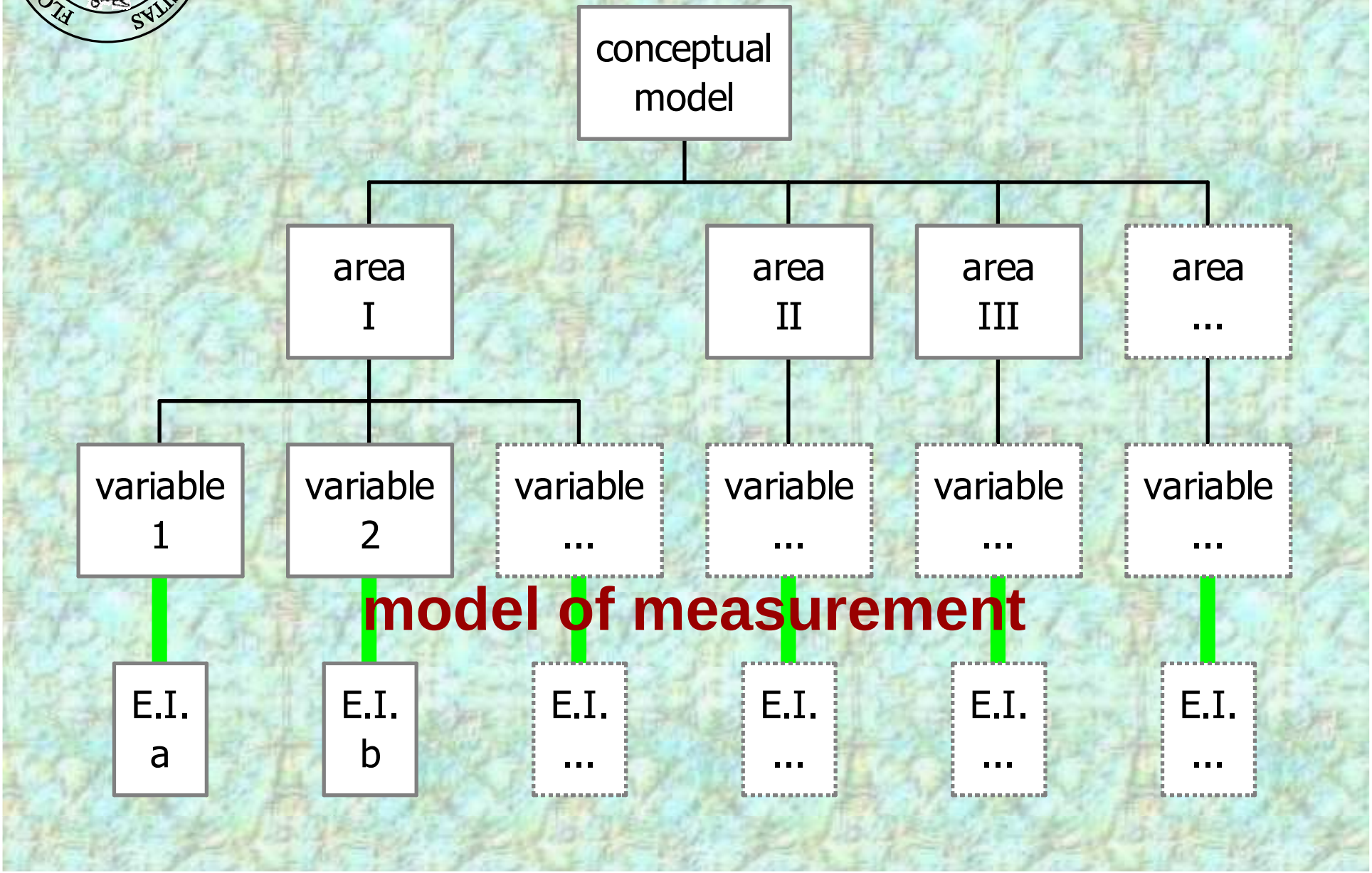
They are defined by:

- appropriate techniques
- a system allowing observed values to be interpreted and evaluated

Developing the indicators



Developing the indicators



Developing the indicators

Two different conceptual approaches:

models with **reflective** indicators

models with **formative** indicators

Developing the indicators

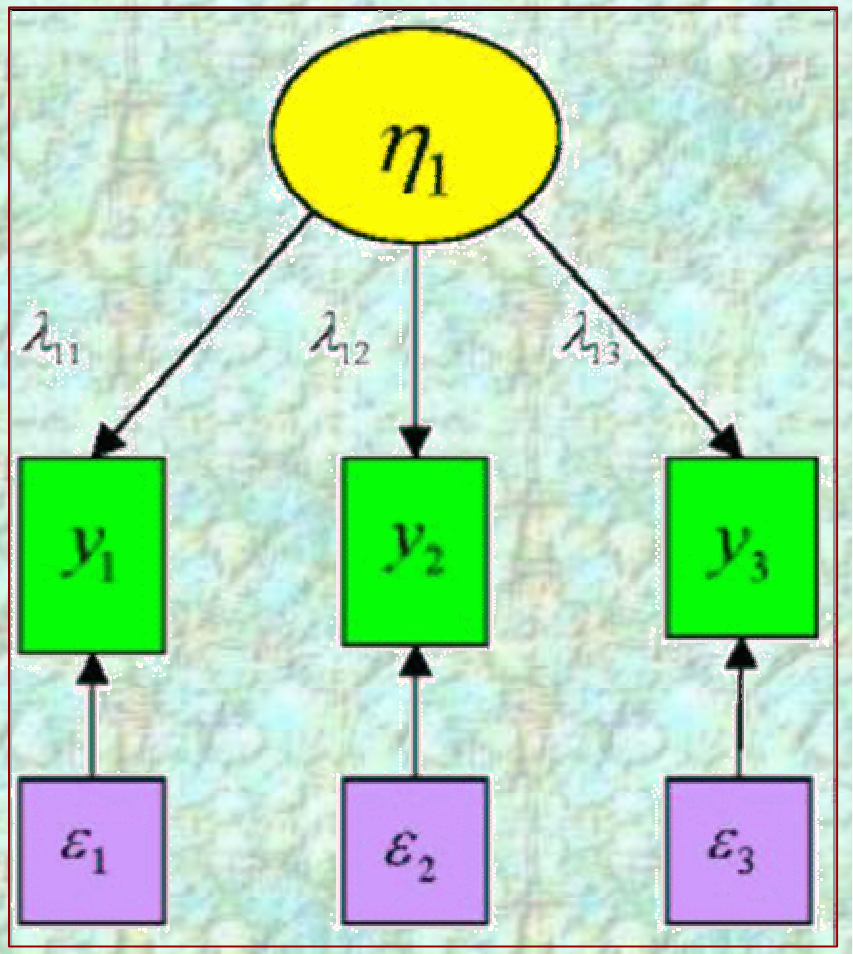
REFLECTIVE

indicators → ***functions of the latent variable***

⇩

changes in the latent variable are reflected in changes in the observable indicators

top-down explanatory approach



e.g.: selfesteem

Developing the indicators

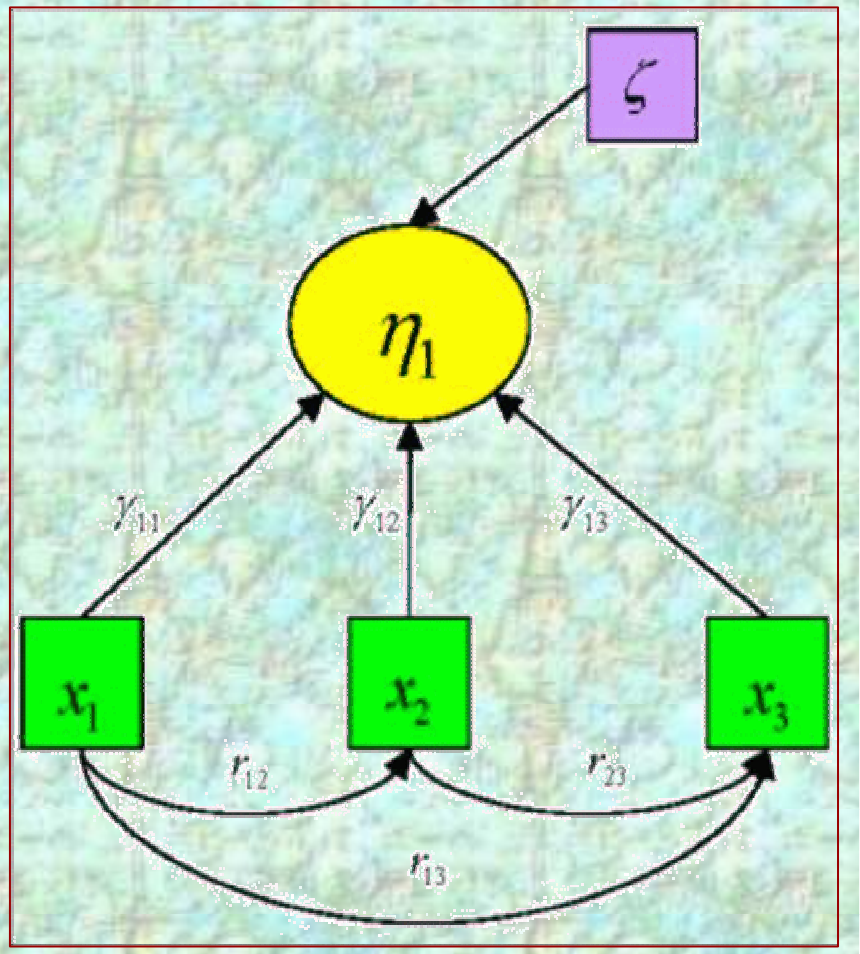
FORMATIVE

indicators → ***causal in nature***

⇩

changes in the indicators determine changes in the definition / value of the latent variable

bottom-up explanatory approach



e.g.: socio-economic status

3.

Defining the conceptual framework

Defining the measurement model

Managing the complexity of the model

Managing the complexity

Applied strategies in order to manage the complexity

↓

***multi-stage multi-technique* approach**

Managing the complexity

GOALS

A. Reducing the complexity of data structure:

i. ***construction of synthetic indicators*** **(aggregating elementary indicators)**

ii. ***definition of macro-units*** **(aggregating micro-units)**

B. Combining indicators:

i. ***definition of dashboard*** **(joint representation of indicators)**

ii. ***construction of composite indicators*** **(merging indicators)**

C. Modelling indicators:

i. ***analysis of indicators*** **(exploring explanations)**

Managing the complexity

Integration:

where / when can be carried out?

Managing the complexity

GOALS

A. Reducing the complexity of data structure:

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B. Combining indicators:

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C. Modelling indicators:

i. *analysis of indicators* (exploring explanations)

Managing the complexity

Dashboards

useful tool, aimed at simultaneously representing, comparing and interpreting indicators' values

- through an analogical perspective
- by setting them on a standardized scale
- by representing them on a colour scale

Managing the complexity

Dashboards

Dashboards allow

- comprehensive **monitoring** and **evaluation** of programmes, performances or policies
- highly **complex systems** of indicators to be **represented** by taking into account the hierarchical design
- **easy communications** through a catchy and simple graphical representation
- **indicators** to be related to **weights** interpreted in terms of *importance*
- performances of difference **cases to be compared**

Managing the complexity

Dashboards

An example

Comparison between three countries' indicators related to the UN Millennium Development Goals (JRC – EC).

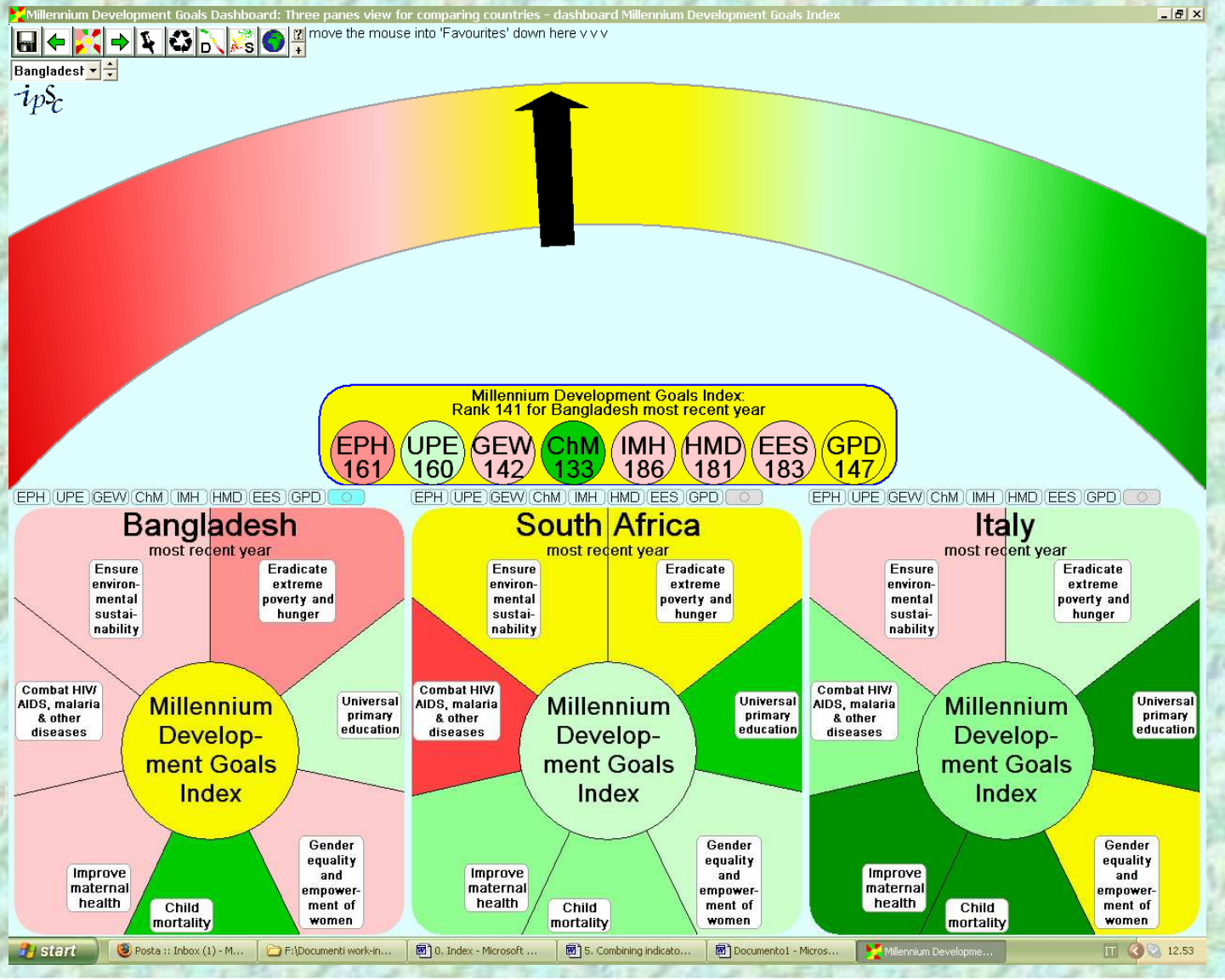
Colours help in identifying the reached goals

- *green* → completely reached
- *red* → not reached at all

Side-by-side arrangement allows different countries' values to be easily compared.

Managing the complexity

Dashboards



Managing the complexity

Dashboards

Useful in view of creating composite indicators.

attractive proposal but

does not allow real integration

Managing the complexity

Composite indicators

OBJECTIVE → **merging different indicators** in a **unique value** referring to each unit of interest

PROS → **manageability** of the obtained results

CONS → **conceptual, interpretative and analytical** problems of the obtained aggregation

Managing the complexity

Composite indicators

They are useful according to different

- *Purposes (descriptive, predictive, …)*
- *Governance contexts (public debate, policy guidance, …)*
- *Perspectives of observation (conglomerative, deprivational, …)*
- *Forms of observation (status, trend, …)*
- *Levels of communication (cold, hot, warm, …)*

Managing the complexity

Composite indicators

attractive proposal but

- **conceptual**
- **interpretative**
- **analytical**

PROBLEMS

Managing the complexity

Modelling indicators

- Structural models approach
- Multi-level approach
- Life-course perspective
- Bayesian networks approach
- Clustering and mapping approaches
- Multidimensional analysis,
- Correspondences analysis
- …

Managing the complexity

Composite indicators

correct and practicable proposals

PROBLEMS:

- **assumptions** (on data, relationships, …)
- **conceptual framework fit**
- **data nature**

Final remarks

The soundness of any adoptable approach relies on **conceptual framework** assuming the correct perspective to be identified according to different objectives:

i. aggregation of indicators and units
ii. integration of objective and subjective information
iii. levels at which the previous objectives have to be pursued

Final remarks

Integrating objective and subjective information is an **important** issue from

- ✓ the conceptual perspective
- ✓ the methodological perspective
- ✓ the policy perspective

Final remarks

Integrating objective and subjective information is a **difficult** issue

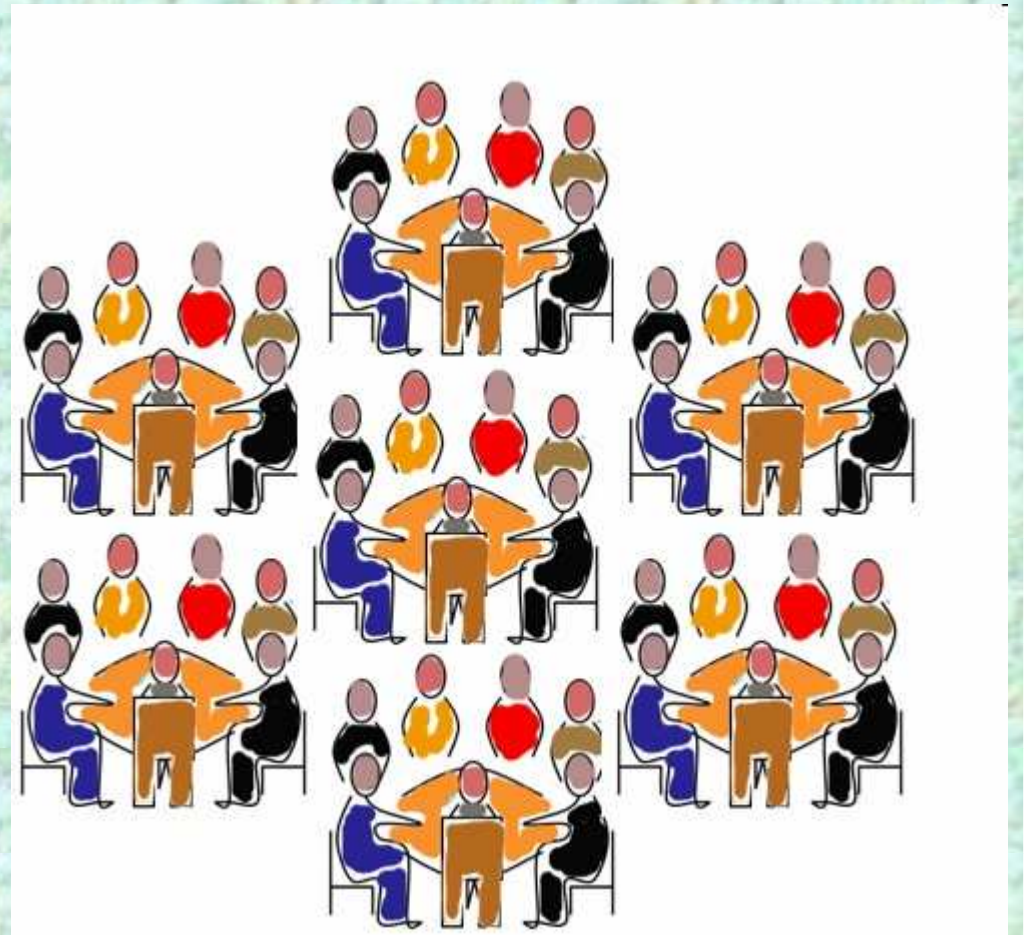
- ✓ from the conceptual point of view
- ✓ from the methodological point of view
- ✓ because of data availability at different levels

Final remarks

more work is needed …

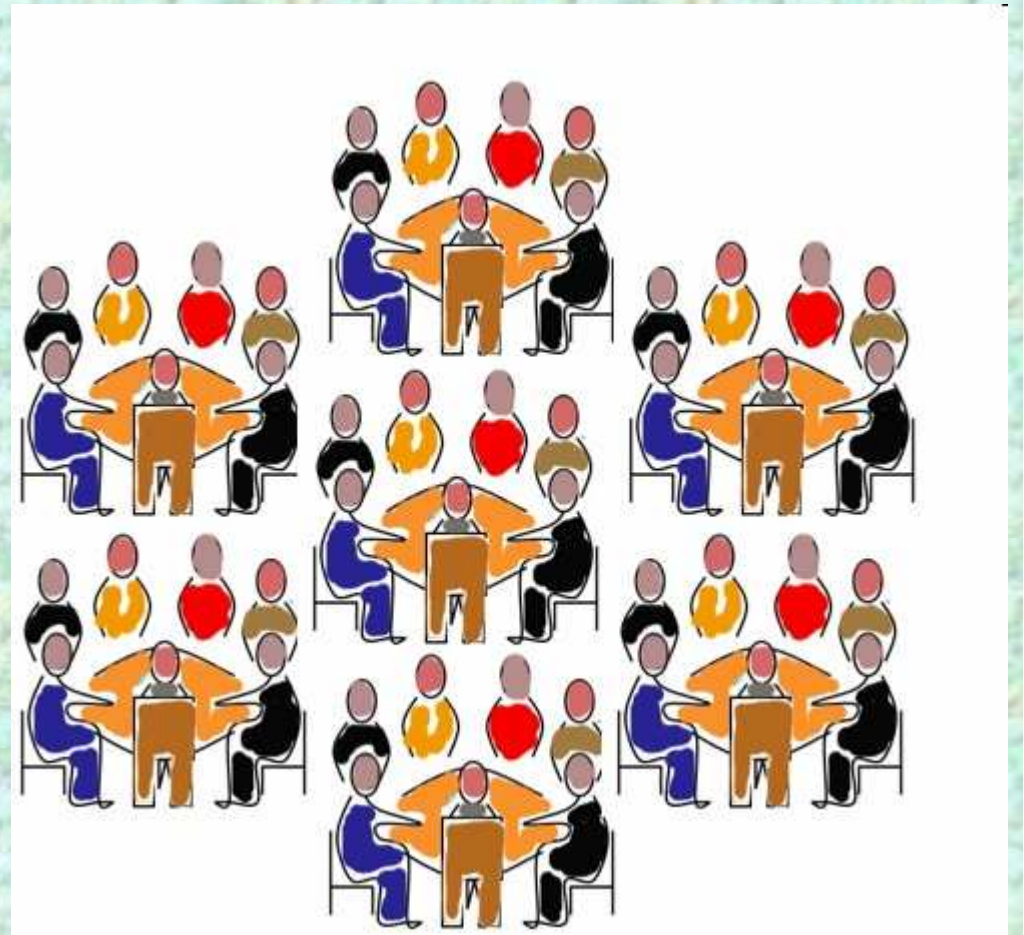
Final remarks

more work is needed …



Final remarks

We are working on it …



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Thank you for your attention