Measuring Economic Well-Being in a Multidimensional Perspective

E. Croci Angelini croci@unimc.it
A. Michelangeli alessandra.michelangeli@unimib.it
Aims of the paper

• Contribute within the research project INEQ covering many aspects of inequality: mechanisms, effects and policies

• Identify structural differences among European countries
  – concerning inequality of living conditions and opportunities
  – quantified by well-being indicators, so to
    • compare living standards across countries and
    • find out whether a trend may be singled out
Map of the paper

• Concepts
  – Welfare and well-being
  – Well-being and poverty
  – Poverty and social exclusion

• Measures
  – Macro- and micro-dates
  – Uni- and multi-dimensional indexes
  – Subjective and objective point of view/approach

• Methods
  – Assiomatic dominance criteria for ranking multivariate distributions
  – Inequality indexes

• Application and results
  – Four EU countries assessed (F, I, DK,)
  – over four attributes
    • Univariate distributions
    • Multivariate distributions
Welfare & well-being

- **Welfare economics:**
  - a social welfare function is defined
  - income is implicitly seen as a proxy of welfare
  - utilitarian approach
  - a number of problems:
    - Interpersonal comparisons of utility
    - Value judgements

- **Well-being**
  - a social evaluation function is defined to rank distributions
  - it is intrinsically multi-dimensional
  - non utilitarian
  - it seeks a measure for “a good life”
Well-being & poverty

• A poverty line defines the set of the poor as distinct from the set of the non-poor
• Useful when the two homogeneous “types” fully correspond to the two dichotomous sets
• It implies a bimodal distribution

• A continuous variable showing an unimodal distribution does not allow a clear and non-arbitrary separation in two sets
• well-being & poverty represent opposite sides of the same gradual dimension
Poverty & social exclusion

• Poverty is deprivation of some essential items e.g. income

• In multidimensional environment how deprivation over different dimensions should be combined?
  – Substitution?
  – Complements?

• Social exclusion is concerned with individuals having
  – impaired access to opportunities,
  – inability to develop full potential,
  – impossibility to take part into society,
  – and therefore deprived
Measures

• **Unidimensional**
  - one monetary variable:
    - Income ➔ disposable income & taxes
    - Expenditure ➔ savings & investment
  - Everything may be bought and sold ➔ prevalence of the market domain

• **Multidimensional**
  - many interwoven factors:
    - Monetary ➔ command over resources
    - Health ➔ nutrition, safety, longevity
    - Education ➔ literacy, attainment, schooling
    - Housing ➔ shelter

• Functionings & capabilities
Measures based on

• **macrodata**
  • Unidimensional ➔
    e.g. GDPpc
  • Multidimensional ➔
    HDI on 3 dimensions:
    – 1/3 Life expectancy at birth
    – 1/3 Education ➔ 2/3 adult literacy + 1/3 gross enrolment
    – 1/3 GDPpc PPP US$

• **microdata**
  • Unidimensional ➔
    e.g. Gini
  • Multidimensional ➔
    – Personal
      • Education
      • Health
    – Household
      • Income
      • Housing
    – …
subjective & objective measures

• Subjective measures: everyone is the best judge of her/himself:
  – Satisfaction evaluation
  – Self assessment of personal conditions on various issues
  – How do you feel? Well-being & happiness

Own value judgements paternalism excluded

• Objective measures:
  – Nutritional requirements based on expert advice
  – Basic needs defined on a basket of goods
  – Measurable dimensions:
    • disposable income
    • educational attainment
    • access to “relevant” goods and services

Normative in choosing relevant issues, items, dimensions
Methods

• Assiomatic
  – Dominance criteria provide partial orderings based on social preference
  – Mainly, homogeneous populations as to the characteristics which are not relevant from well-being point of view (age, sex, …)

• Inequality indexes
  – order all distributions
  – homogeneous populations not needed
  – Problems as to:
    • Dimensions identification ➔ what is relevant
    • Choice of attributes ➔ how measurable it is
    • Aggregation rules ➔ cardinality, weights, categorial variables …
Inequality indexes

• Fuzzy sets
  – Zadeh, 1965
  – Dubois & Prade, 1980
  – Cerioli & Zani, 1990
  – Cheli & Lemmi, 1995
  – Chiappero Martinetti, 2000, 2006

• Assiomatically built
  – Kolm, 1977
  – Atkinson & Bourguignon, 1982
  – Maasoumi, 1986, 1999
  – Tsui, 1995, 1999
  – Mueller & Trannoy, 2003
  – Weymark, 2006

They all share difficulties over concept definitions and aggregation rules
difficulties

• Ranking individuals over heterogeneous dimensions such as:
  – Income ➔ ranks command over resources
  – Education ➔ *per se* + ability of enjoyment
  – Health ➔ *per se* + ability of self support

• Value judgements on inequality due to:
  – Effort ➔ legitimate inequality
  – Circumstances ➔ social background
  – Luck ➔ beyond individual control