Time Distance Comparisons of Macro Indicators of Wellbeing

Professor Pavle Sicherl
SICENTER and University of Ljubljana, Slovenia
Pavle.Sicherl@sicenter.si, www.sicenter.si

Introduction

This paper will concentrate on the inter-temporal aspect of measuring well-being and societal progress. In the 2004 IARIW Conference there was a coincidence that two papers in the plenary sessions on measuring and interpreting global inequality and poverty raised the same problem of the unsatisfactory situation that at the empirical level the one-sided reliance on relative measures is almost unconditional and both recommended that they should be complemented by other dimensions. Atkinson and Brandolini paper ('Global world inequality: absolute, relative or intermediary?') put the emphasis on a broader choice of static measures, while my paper ('Time distance: a missing link in comparative analysis') discussed the time distance concept and its role in measuring the temporal aspect of disparity. One could conclude that the arguments for extension in several directions to a broader framework in theory and especially in empirical and policy work are well established; it has to happen sooner or later.

Methodology

A brief outline of the time distance methodology will be presented. Comparing across many indicators and fields of concern is the essence of quantitative work in forming perceptions assessing the overall "position" and "progress". It has been shown that in comparisons across indicators S-time-distance as a new generic statistical measure in many cases produced different and sometimes very surprising new qualitative conclusions.

In graphical terms, the usual way is to compare the time series in the **vertical dimension**, i.e. for a given point in time. The S-time-distance approach uses an additional perspective; it compares the respective time series in the **horizontal dimension**, i.e. for a given level of the variable. The two most widely used measures are static difference between two or more units and growth rate. At the same level of generality there exists a companion generic statistical measure S-time-distance as a special category of time distances defined by the level of the variable.

A new set of information with clear interpretability, hidden in the available data, is now provided for analytical and policy use over a very large domain of issues due to an added dimension of measurement and analysis. Since S-time-distance is expressed in time units, it is intuitively understood by policymakers, professionals, managers, media and the general public. Thus it is also comparable across variables, fields of concern and units of comparison, which is a very useful characteristic of a statistical measure.

World inequality in the time distance perspective

This section will present the S-time-distance estimates for 160 countries for GDP per capita based on time series data by Angus Maddison. Recent data for these countries in 2003 will be compared with the time series data for Sweden for the period 1820-2003. The frequency

distribution of S-time-distances as a measure of deviation in time for given levels of the indicator will complement the possible static measures of disparity for this set of 160 countries.

A similar study of the long-term perspective in disparity will be done for life expectancy and infant mortality rate over many countries. This will offer both the possibility to examine the time distance perspective in each of these three important domains as well as a comparison of conclusions across the three indicators.

Composite indicators and S-time-distance: the example of Human Development Index

An example of complementing static measures of disparity with time distances for a composite indicator will be done for Human Development Index. HDI is an established composite indicator and the time series of HDI for selected years are now available for the period 1975-2003 for the group of European countries which will be used in this empirical example. Static disparities in HDI appear small while S-time-distances are large. This divergence may be important also when considering other composite indicators.

Conclusions

The conclusion will be organized in two parts. Firstly, when we are trying to develop innovative measures of wellbeing, including both composite indexes and sets of indicators, we also have to look for innovative measures that present data better in an understandable way to the actors of decision-making. S-time-distance measure is such a measure with clear interpretability that delivers a broader concept to look at data and to compare situations. This innovation opens the possibility for simultaneous two-dimensional comparisons of time series data: vertically (standard measures of static difference) as well as horizontally (Sicherl time distance). No earlier results are lost or replaced but additional information hidden in the existing data is now provided due to an added dimension of measurement and analysis.

Secondly, the degree of disparity may be very different in static terms and in time distance.