

# **Diplomarbeit bei Dr. A. Tangian zu vergeben**

## **Program for compiling used-defined composite indicators (theme for a diploma)**

Andranik Tangian  
[andranik-tangian@boeckler.de](mailto:andranik-tangian@boeckler.de)

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The output of the given work is intended to contribute to the OECD (Paris) international project *Measuring Progress in Societies*, where A. Tangian is the member of the initiative committee.

### ***Needs of policy making and of quantitative analysis***

A policy is usually formulated in quite general terms. For instance, European documents refer to 'quality of work' or 'quality of jobs'. Since there was no aggregate index, European Commission in *Structural Indicators* (2001) officially adopted an available substitute, in the given case — accidents at work (not enough comprehensive), or applied numerous statistical figures (not corresponding to the level of consideration). In fact, labels in policy making should be 1–1 supported by dedicated indices for targeting, monitoring, and benchmarking. For this purpose, composite indicators are needed. Therefore, their development is more than just an academic question but also a policy making item.

### ***Composite indicators***

Composite indicators, or aggregated indices, are increasingly propagating during the last decade. They appear in numerous world-wide documents of United Nations, World Economic Forum, OECD, etc. As emphasized in *Composite Indicators of Country Performance: A Critical Assessment* (OECD 2003, p. 3),

Composite indicators are valued for their ability to integrate large amounts of information into easily understood formats for a general audience... Despite their many deficiencies, composite indicators will continue to be developed due to their usefulness...

In October 2001 the European Commission recommended to develop composite indicators for certain purposes within the *Structural Indicators Exercise* followed by the report *Towards a European Research Area "Science, Technology and Innovation": Key Figures 2002* with the annex "Methodology of Composite Indicators". In 2005 the Joint Research Centre of the European Communities has published, together with the OECD, *Handbook on Constructing Composite Indicators: Methodology and User Guide*.

### ***Options for available data sources***

One single data source is generally used for numerous studies. Each analyst has own goals for particular data, aggregation procedures, and specific tabular and graphic visualizations. Many institutions support the access to their data sources with online customized options. For instance, now the Eurostat *New Cronos* webpage supports a variety of user-defined extractions. The OECD *Tax-Benefit Models* allow computing net replacement rates in OECD countries for different periods of unemployment, depending on personal situation. The European Foundation for the Improvement of Living and Working Conditions provides the anonymized file of the *European Working Conditions Survey* in different formats for standard statistical packages like SPSS, EXELL, etc. which offer numerous processing and visualization options. The next step would be providing online tools for constructing user-defined composite indicators.

## **Framework for constructing composite indicators**

Most of data sources can be imagined as a large table with rows being single records and columns considered as variables. Constructing a composite indicator includes the following steps which can be supported with online tools:

1. Design of the indicator hierarchical structure, that is, specifying the hierarchical grouping of the variables and of their weights, as well as of the weights of the groups
2. Re-coding and re-scaling the variables to obtain meaningful numerical representations of the variables
3. Horizontal aggregation of rows with obtaining intermediate and final aggregate indexes for each record. Computing composite indicators for groups of records as their average
4. Visualization of the results with tables and graphs

A detailed description of these steps in application to specific tasks can be found in the recent publications of the author of the proposal:

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