



Agenda

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5.3 Composite economic indicators, some definitions

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5.7 Steps for construction of composite economic indicators

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5.1 Introduction

- Composite economic indicators has been in use for many years
- After the Great Recession of 2008/2009 users demanded more streamlined indicators
- Main purpose for composite economic indicators is early warning measures, cyclical turning points and comparative studies





5.2 Arguments for and against composite economic indicators

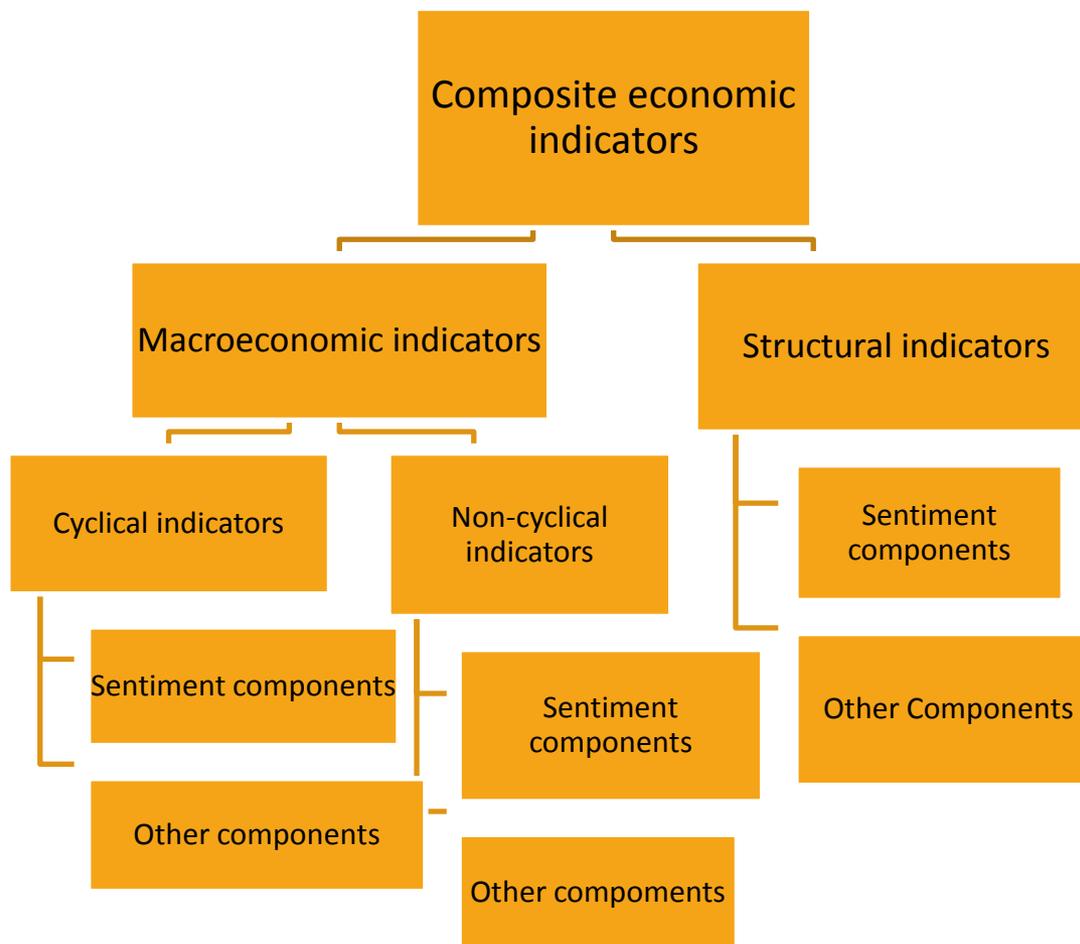
- + Can summarize complex, multi-dimensional concepts
- + Easier to compare country performance
- + Easier to follow trend for policy makers

- Methods used are not in line with the statistical requirements
- Conceptual models not well developed
- Risk of failure over time as the economy is changing





5.3 Composite economic indicators, some definitions





5.4 Cyclical composite economic indicators

- Have ambition to forecast the business cycle
- Have reference series – usually GDP
- Aim to present an "early signal"
- Common indicators among NSOs





5.5 Non cyclical indicators

- The non-cyclical composite economic indicators are found in areas such as productivity, globalization and innovation
- Do not usually have reference series
- Tool in policy analysis in tracking signals of economic change in the short term perspective
- Often based on mathematical models
- May seem more complex to understand





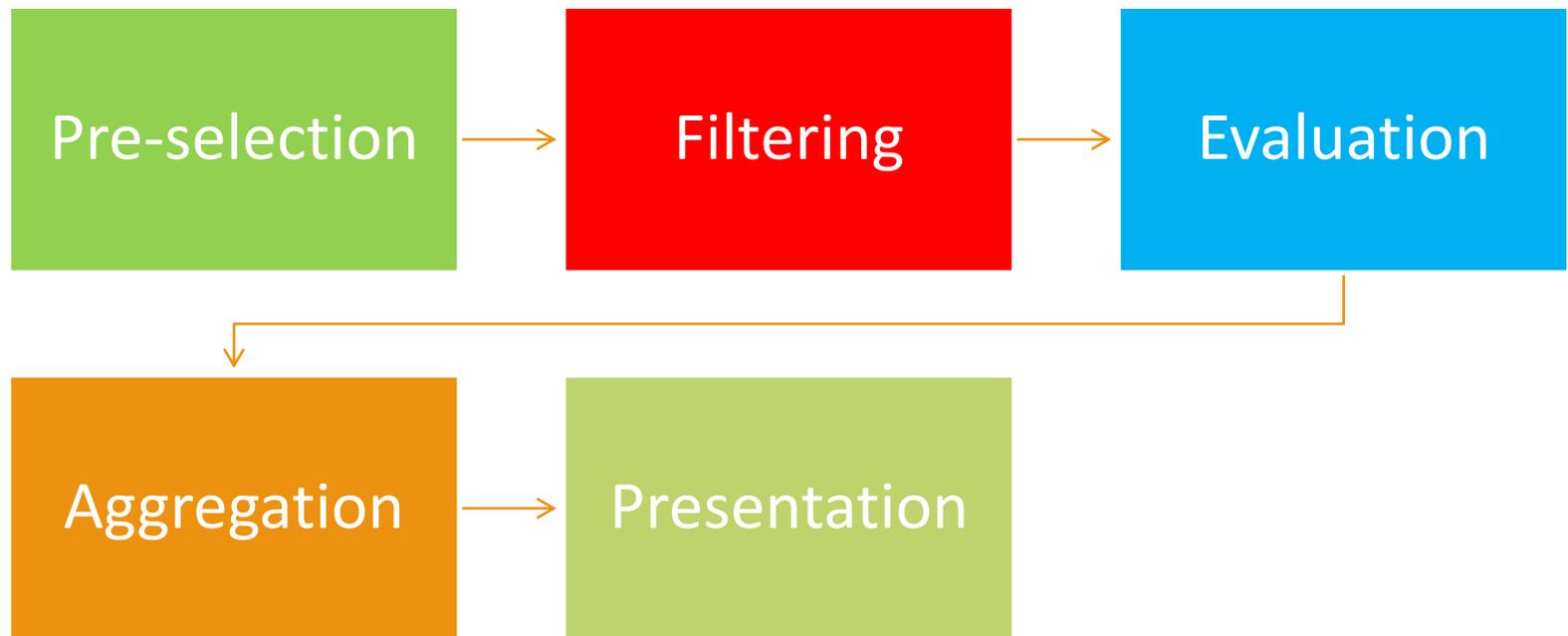
5.6 Structural indicators

- Mainly used within microeconomics
- Aims to measure long-term or permanent structural change in the economy
- Examines the behaviour of the firm to measure the underlying forces of the economic change
- Used for long-term comparative studies of development, i.e. for innovation





5.7 Steps for construction of composite economic indicators





Phase 1: Pre-selection

1. Creating a theoretical framework of the aim of the composite indicators
 - i. Clearly defined "scope" of the measure and its aim
 - ii. Examine properties of the framework
 - iii. Examine "leading abilities"
 - iv. Important step

2. Data Selection
 - i. Secure quality of input data
 - ii. Possibilities to disaggregate underlying data
 - iii. Secure interdependencies between data





Phase 2: Filtering

3. Imputation of missing data

- General methods used are:

- Case deletion
- Single imputation
- Multiple imputations

Outliers should be taken into account

4. Multivariate analysis

- Analysis of underlying structure of the data selected is performed, by the use of several methods.

5. Normalization of data

- Required prior to aggregation to harmonize data sets





Phase 3: Evaluation

6. Mainly used for cyclical composite economic indicators

- Judge the cyclical conformity and performance against the reference series

- Analysis of:
 - Performance
 - Cyclical conformity
 - Consistency





Phase 4: Aggregation

7. Weighting and aggregation

- Weights can have a significant effect on the overall composite indicators and country rankings. The choice of weighting and aggregation methods and are important as these are essentially value judgements.
- The aggregation consist of two steps;
(1) from indicators to sub-dimensions or domains and
(2) from domains to a composite index.





Phase 5: Presentation

8. Robustness and sensitivity analysis

- By using a combination of uncertainty and sensitivity analysis the robustness of the indicators can be gauged and transparency can be improved

9. Back to the details

- Decomposition to analysis the sub-components of the indicator

10. Links to other indicators

- Correlation links are used to test the explanatory power of the composite indicators

11. Visualization of the results





Visualization

- Interaction with users important
- Choice of communication channels crucial depending on the user group;
 - Specialists
 - Academia
 - Specialized journalists
 - Policy analysts
- or
 - Citizens or the public





Recommendations

- **Recommendations 5-1:** The pros and cons for using composite economic indicators(CEI) has to be carefully considered. There are many good examples of CEI in use, but there are also examples of misuse or misinterpretation. It is important to be able to set aside enough resources to develop composite economic indicators of good quality and to evaluate these on a regular basis.
- **Recommendation 5-2:** Construction of composite economic indicators should follow a standardized model, e.g. the OECD model or the UN/Eurostat model presented in the guide. The theoretical basis should be carefully elaborated to form the most appropriate conceptual model for the composite indicator. Data selection is important and it should be secured that the underlying data is of good quality. Weighting and aggregation may be the most crucial steps in the construction of the indicator and therefore it is of high importance to have a high methodological skill in the construction work. The choice of methods will have a large impact on the outcome of the indicator and its interpretation.
- **Recommendation 5-3:** Dissemination of the composite economic indicators should include a thorough analysis of the expected audience. Users with little knowledge of statistics need information that is easily understood, such as pictures or graphs, while more initiated users, such as analysts or researchers also need explanations of underlying data and methods used in the compilation of the indicator. Visualization must be well design to give the correct message to the audience.





Research agenda

- Guidelines on a standardized model for production of LCS-indicators based on the work from UN/OECD/Eurostat
- Presentation of a quality framework for LCS-indicators
- Development of LCS-indicators based on these guidelines as benchmark tool





Thank you!



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