Aggregation of Intercorrelated International Indices of Public Administration Effectiveness

Abstract

Socio-economic indices are an increasingly popular type of analytical tools in social sciences. They are capable of representing complex social phenomena as relatively simple quantitative variables, which enables researchers to apply many methods of quantitative and comparative analysis to studies in various areas, including public administration. Index-based evaluation of public administration effectiveness is widely used by scholars, administrators, policymakers and private managers alike, and there exist numerous indices designed for this purpose. However, relatively few studies have examined the effectiveness and possible shortcomings of the indices used. One such shortcoming highlighted by previous research is that the values of some indices are strongly statistically correlated with each other, possibly to the point where the indices are statistical duplicates of each other. This may make them inefficient or misleading as analytical tools, due to users not taking the correlations into account when utilizing multiple correlated indices.

This study considers two popular sets of international indices of public administration effectiveness – namely Worldwide Governance Indicators and Doing Business indices – and their own effectiveness as analytical tools. The goal of the study is to determine whether these indices are subject to the described limitation of strong intercorrelation, and to explore how this limitation can be overcame if present. It is suggested that it may be possible to accomplish that with the use of principal component analysis. This method may allow to transform the studied base indices into aggregate indices, reducing the number of variables and removing the correlations between indices without significant loss of useful information contained in the indices.

To achieve the goals set, correlation analysis and principal component analysis are carried out on the values of the Worldwide Governance Indicators and the Doing Business indices for all available countries, utilizing the datasets downloaded from World Bank's official site. The preliminary results show strong positive correlations between the Worldwide Governance Indicators and moderate positive correlations between the Doing Business indices. It is likely that principal component analysis will be able to yield more effective indices by removing these correlations. It is expected that the efficiency of aggregation using principal component analysis will depend on the strength of correlations between aggregated indices. The results of this study may have important implications for all users of the analyzed sets of indices. Furthermore, this study is expected to become a basis for a large volume of further research into the field of index-based evaluation of public administration effectiveness, which may have significant impact on public administration worldwide.