

## STATISTICAL THEORY

### **A new way of index creation: The penalty for the bottleneck method**

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Over the last decade, index building has become a very popular topic. The basic aim of index computations is to derive one number that can provide a summary “value” for the investigated units. In this study, we are willing to provide an acceptable solution to a frequent problem of index building, i.e. the high differences (variation) amongst the variables. The basic assumption of the newly developed Penalty for Bottleneck (PFB) methodology is that bottlenecks, i.e. large deviations in different features, can have a negative effect on the particular feature having higher value. Consequently, the value of the index is mainly determined by the variable with the worst value that can be considered as the weakest link amongst all the variables. The advantage of the methodology is its analytical basis. Therefore, it is not sensitive to sample size, like other statistical methods. The Global Competitiveness Index serves as an example to show the advantages of the PFB over other methods.

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