



## Evaluating Food security by a composite indicators: an application to developing countries

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Eradicating hunger and malnutrition is one of the great challenges that requires the implementation of strategies to strengthen the food security and develop a statistical monitoring, review and surveillance processes, in particular with increasing frequency of economic crises and social conflicts. Many countries and international organizations have favoured a pragmatic approach based on the elementary indicators, supposed to reflect some dimensions of food security. However, the development of composite indicators, calculated by aggregating heterogeneous elementary indicators of security food, is necessary in order to provide a synthetic vision over time and lead to better policies and decisions than would have been the case without it. The paper present two methods to estimate a composite indicator of Food security; one based on factorial analysis and the other from unit ranking of the six normalized indicators, allowing clear understanding of Food security trends and drawing comparisons between 21 selected countries including Morocco. The five indicators selected are the food availability per capita, GDP per capita, political stability and absence of violence and terrorism and variability of food production per capita. The study was conducted over the period 2002-2019.

The results indicate that the composite indicators calculated from the two methods show almost similar trend changes. With the exception of Nigeria and Jordan, which experienced a deterioration of 0.2 and 0.18 points in their food security indices, all the other countries in the sample showed continuous improvement in their food situation. The results also present also a reverse synchronization with “prevalence of undernourishment” and of the “Scale of experience of food insecurity (FIES)”. We conclude with the hypothesis that to end hunger or manage food crises, the central vector for all composite indicators of food security remains the improvement of food availability per capita. In these situations, it is necessary to increase the strength of financial support to the agricultural sector, improving its production and diversification capacity. It is also important to establish an effective long-term mechanism to protect agricultural production and reduce the constraints of cropland and water resources linked to climate change, especially in vulnerable areas and countries.

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