2019 KOF Globalisation Index

Method of calculation

The KOF Globalisation Index is calculated on a yearly basis from 1970 to 2017. However, not all data are available for all countries and all years. Missing values within a series are imputed using linear interpolation. Missing values at the beginning or the end of a series are substituted by the closest observation available. Specifically, this implies that we carry the last value backward in the case of missing data at the beginning of a series and forward in the case of missing data at the end of a series.

Normalizing the data implies that each variable is transformed to an index with a scale from one to one hundred, where 100 is assigned to the maximum value of a specific variable over the whole sample of countries and the entire period of time. It is the analogue to a transformation of the series according to the percentiles of its original distribution. The procedure is called panel normalization which is different to annual normalization where data points are normalized across all countries in the same year only. The resulting data is well-behaved in terms of sensitivity to outliers, which is a clear advantage over the original series. The downside is that changes in the data in one year affects the ranking of countries in other years.

We perform principal components analysis on a 10-year rolling window of data to determine time varying weights for the individual variables. This means we use observations for t-10 until t-1 to compute the weights for time t. The weights for the years 1970 to 1979 are set equal the weights of the year 1980 given the shorter time window. Principal components analysis partitions the variance of the variables used in each sub-group and the weights are determined in a way that maximizes the variation of the resulting principal component. We calculate the weights using the entire sample of countries at the same time. With the time varying weights for the variables, the weighting procedure has the possibility to adapt to changes in the relevance of certain variables to capture globalisation over time.

While the weights of individual variables can change over the years, the weights of the sub-indices are held fixed over the time horizon. The sub-indices themselves are aggregated to higher ranked indices using equal weights. Economic globalisation is composed of trade globalisation and financial globalisation, of which each gets a weight of 50 percent. Social globalisation consists of personal contact, information flows and cultural proximity where each contributes one third. Economic, social and political globalisation are aggregated to the Globalisation Index using again equal weights. The overall KOF Globalisation Index is calculated as the average of the de facto and the de jure Globalisation Index.

Once the weights are determined, the aggregation consists of adding up individual weighted variables instead of using the aggregated lower-level indices. This has the advantage that variables enter the higher levels of the index even if the value of a sub-index is not reported due to missing data. Observations of indices are reported as missing if more than 50% of the observations of the underlying variables are missing or at least two out of three sub-indices cannot be calculated.