7. Appendix B

Methodology

The methodology of this index follows the same mathematical basis of JSF's "Jordan Investor Confidence Index" (JICI). The score of the JPI ranges from 100 to 200. A score of 100 represents the worst performance in a certain category from 2009 to 2019, and a score of 200 represents the best performance in a category in the same period. The original data set is compiled by the Legatum Institute, whose variables originate from multiple international indices and indicators that are reported by donor agencies (World Bank, UN, IMF, etc.) International Institutions and think tanks (Gallup Institute, QS Ranking, etc.) and departments of statistics of many countries.

Variables of the original dataset were modified by JSF based on relevance to the Jordanian context, in addition to the change in performance over time. For the latter, variables with a standard deviation of zero were automatically dropped since they do not possess any mathematical significance, given that the best performance from 2009 to 2019 equals the worst performance. For variables with incomplete datasets, Multiple Imputations by Chained Equations (MICE) were used to resolve inconsistencies, which inherently gives these variables the least weight possible.

The following steps were followed to calculate the Jordan Prosperity Index:

1) **Z-Scores:** For each variable X , the Z-Score is calculated using the following equation:

$$Z_{score} = \frac{x - \mu}{\sigma}$$

Where
x: $Value\ in\ variable\ X\ in\ the\ desired\ year$
μ: $Arithmetic\ mean\ of\ all\ values\ in\ X$
σ: $Standard\ Deviation\ of\ all\ values\ X$

2) **Feature Scaling:** In order to restrict scores between 100 and 200 (i.e., min-max normalization), each of the Z-Scores calculated in the previous step are subjected to the following equation:

$$Scaled\ Score = \left[\left(\frac{Z_{score} - \min}{max - min}\right) * 100\right] + 100$$

3) **Weights:** The initial weights are provided by the Legatum institute based on reliability, theoretical, and empirical significance to the pillar. For the purposes of mathematical consistency (*tested by Cronbach's Alpha and other numerical methods*), weights are given a value of 0.5, 1 or 1.5, such that the sum of all weights is equal to the number of variables. The weight of each sub-index also takes the number of variables under it into account.
4) **Weighted Average:** Given the weights calculated in step 3, in addition to the scores calculated in step 2, the weighted average is calculated per sub-index.
5) **Aggregation of the JPI:** A Hedonic Well-Being Index and an Evaluative Well-Being Index are calculated by a weighted average of all hedonic and evaluative sub-indices, respectively. Finally, the JPI is calculated by taking the simple average of the Hedonic Well-Being Index and the Evaluative Well-Being Index.