**Appendix B**

Following Ferragina et al., (2015) we performed a sensitivity analysis of the model-based clustering method by randomly selecting countries and indicators in the model 10,000 times using Monte Carlo simulations. The sensitivity analysis indicates that the clusters in the base model held up relatively well across the simulations. However, the extreme values in Cluster Four and Cluster Six seem to have regressed toward the mean in the simulations, which is to be expected. Overall, the sensitivity analysis indicates that the base model represents the clusters relatively well and that the general construct of the clusters seems to hold. As we note in the main document, these clusters should be interpreted with fuzzy boundaries, pointing to a general grouping, not sharp boundaries.

Figure 1 illustrates the proportion of clusters by welfare regimes for the random indicator simulations, and Figure 2 does the same for the random country simulations. These proportions seem to vary—as expected—but generally point toward the classifications made in the main document. Table 1 presents the mean social inclusion index values of the base model and two simulations. As noted above, while these findings point toward a general regression toward the mean for each cluster, the general shape of each cluster still holds.

**Figure 1. Proportion of Cluster by Regime for Random Indicator Simulations.**

A graph of gray and black squares

Description automatically generated with medium confidence

*Note. 10,000 models with randomly selected indicators using Monte Carlo simulation.*

**Figure 2. Proportion of Cluster by Regime for Random Country Simulations.**

A graph of different shades of gray

Description automatically generated

*Note. 10,000 models with randomly selected countries using Monte Carlo simulation.*

**Table 1. Cluster Summary Statistics for Sensitivity Analysis.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Social Inclusion | | | | | |
|  | Base Model  (N = 1) | | Random Indicator  (N = 10,000) | | Random Country  (N = 10,000) | |
| Cluster | (SE) | SD | (SE) | SD | (SE) | SD |
| Model-based Clustering |  |  |  |  |  |  |
| *Cluster One* | -.492  (.118) | .911 | -1.030 (.003) | 1.645 | -.477  (.004) | 1.915 |
| *Cluster Two* | .093  (.110) | .867 | -.062  (.002) | 1.613 | .145  (.005) | 2.115 |
| *Cluster Three* | .444  (.061) | .409 | .415  (.002) | 1.328 | .155  (.005) | 2.225 |
| *Cluster Four* | 1.225  (.055) | .265 | -.168  (.003) | 1.957 | -.020  (.006) | 2.350 |
| *Cluster Five* | .758  (.075) | .259 | .672  (.004) | 1.832 | .083  (.006) | 2.604 |
| *Cluster Six* | -1.456 (.103) | .496 | .477  (.005) | 2.133 | .269  (.007) | 2.776 |

*Note. “N” denotes number of models.*