

The epitome of the future world from the perspective of demographic composition

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Abstract

Compositional data analysis provides suitable methods for representing an epitome. An epitome is a miniature model that represents a larger reality. In measuring what or where this archetype is located, similar qualitative information, in terms of proportion or percent of characteristics, is important. The (dis-)similarity of compositional data can be measured using the Aitchison distance, one of the core concepts of compositional data analysis (Aitchison, 1986).

The present study compares the future world of 2020–2100, estimated by United Nations (2015), with all countries of 2015 from the perspective of demographic composition classified into five-year age groups (0–4, 5–9, ..., 95–99, 100+), and using the Aitchison distance as a (dis-)similarity index. In recent years, the usefulness of compositional data analysis has been discussed in population studies (*e.g.*, Lloyd and others, 2012; Lloyd, 2016a; 2016b). The aging population rate in developed countries — Japan and Italy in particular — is remarkable; and, furthermore, it has been pointed out that the future world will likely follow this trend (United Nations, 2015). Under the circumstances, it is important to determine which countries of 2015 might demographically represent the epitome of the future world. As parts of the results, we show that the demographic composition of Uruguay of 2015 is the most analogous of the future world of 2050; and that those of the future world approach the most similar countries at that time.

References

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