

Review of: "Probability spaces identifying ordinal and cardinal utilities in problems of an economic nature: new issues and perspectives"

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Potential competing interests: No potential competing interests to declare.

Comments

The authors have patched up a mathematically rigorous paper commendably, traversing classical and behavioural economics. What lacks are clear actionable recommendations to provide practical relevance. Additionally, consideration of the following is likely to value add to the paper.

1. There is latent beauty associated with short sentences (in the abstract), but communication flow needs to be preserved; e.g., "Rational behaviours towards risk are based on them." Its not clear what "them" refers to, since the previous sentence has two nouns.
2. Polish grammar in especially the second paragraph in the introduction. Consider avoiding judgmental statements like "we do not agree with proliferation of research works... . We would prefer research works...". You could include such an opinion but support it with literature/empirical findings so that it does not sound subjective.
3. Presentation of infinite sets is improperly done. Conventionally, infinite sets end with three dots to show indefinite continuity. Consider revising denotation to succinctly differentiate between finite and infinite sets in section 1.2 and 1.3.
4. Notation $\mathbf{P}(\mathbf{X})$ is confusing. In section 1.2, it represents the asset price. In section 1.3, it represents asset return. Clarify.
5. Examples and remarks the authors have given do not reflect a journal article format. Consider presenting any examples in prose to preserve an article format, lest it looks like class notes.
6. At the onset, a promise to use both cardinal and ordinal utility in analysis was made. However, it's not clear in the article any instances of ordinal utility use. A utility function has been used throughout. The notion of ordinal utility using distance rather than ranks conflicts with cardinal utility. This has been confirmed in the first paragraph in the conclusion section.
7. The conclusion is scanty, in view of the intense objectives initially laid out. The statement " an extension of the notion of barycenter ... is then treated" does not sound a conclusion. Every objective as initially spelt out deserves conclusion, preferably in separate paragraphs.