Reviewers' comments:

Associate Editor in Charge:

The subject of the paper is interesting and clearly falls within the scope of MSS. The paper has value.

I have two reports on this paper.

Both are recommending a major revision.

The first referee liked the paper but asks for a more streamlined redaction, a better relation to the literature on fuzzy sets and a more detailed empirical part.

The second referee points out that the paper is insufficiently related to the existing literature and that some tools are already available that limit the interest of a closed form result.

I think that these comments are clearly explained in the reports and are well taken.

Hence my view is that the paper should undergo a major revision before the paper can be considered for publication in MSS. In my view this major revision is without commitment.

Reviewer #1: See the attached document on EES

Reviewer #2: The authors develop a fuzzified version of the Human Development Index (HDI), and prove that it's calculation has a closed-form solution. I'm not really convinced that this work should have been done in the first place, due to the following two reasons:

1. My main concern is the "fuzzification" - why do you want to fuzzify the weights in the first place and compute some "truth values"? That is, if you have uncertainty about the weights, then maybe you should perform sensitivity analysis over some feasible ranges, or construct a model where the imprecision is part of the model? This would seem to be more approriate to me than bringing in a new concept, i.e. fuzzy set theory, which is better suited for modeling ambiquity about linguistic terms than for modeling imprecision on the weights.

2. The proof leading eventually to the closed-form solution (2.33) seems a bit useless, as it has been shown that polytope volumes can be approximated in O^5\*(n) (see Kannan & al: RANDOM WALKS AND AN O ∗ (n 5 ) VOLUME ALGORITHM FOR CONVEX BODIES. Random Structures and Algorithms, 1997), and that MCMC techniques (with open-source R implementations) can be used for sampling weights from restricted simplexes (see T. Tervonen, G. van Valkenhoef, N. Bastürk, and D. Postmus. Hit-and-run enables efficient weight generation for simulation-based multiple criteria decision analysis. European Journal of Operational Research, 224(3):552-559, 2013). Now why would the authors want to develop a closed-form solution for the problem? Also, is computing this faster than the estimation through simulation? As it has been shown that polytope volume computation is hard, I doubt so.