**Report of the paper “Fuzzy ranking of human development: a proposal”, submitted to *Mathematical Social Sciences* (MSS-D-14-00217).**

*General remarks*

This paper proposes a nice implementation of human development as a fuzzy concept that takes into account the vagueness that is implicit in the choice of weighting systems. I think the idea is interesting and in line with other proposals in the welfare measurement literature that already incorporate the use of the fuzzy approach (e.g. in the measurement of inequality or poverty). However, there are several issues that should be addressed before the paper could be considered for publication.

1. The paper is very discontinuous in several places. It starts with a nice and smooth motivation and introduction of the subject but suddenly becomes disordered when it comes to technical matters. This is particularly apparent in section 2.2. The authors discuss all kinds of issues that are ill-motivated (or not motivated at all, seemingly coming out of nowhere) and that are not clearly taken up later in the paper, so it is unclear why they are introduced at all.

a) Fuzzy relation properties (reciprocality, transitivities): They are barely discussed and it is unclear how they relate to the proposal of the paper. In some places, the discussion is confusing: in the first paragraph of section 2.2 the authors state that “…others such as reciprocality (*μ*(*x*,*y*) + *μ*(*y*,*x*) = 1 for all *x*, *y* and *z*) no longer always hold”. Later on, the third paragraph starts with “The reciprocality (*μ*(*x*,*y*) + *μ*(*y*,*x*) = 1) is an appealing property in ranking human development…”.

b) At the end of the third paragraph in section 2.2 the authors speak about an “important result” derived by Ok (1995) and introduce a functional form for the truth-value function. The authors should be much clearer regarding what that “important result” is about, as it is now it seems to come out of nowhere. The choice of the φ-function seems very arbitrary. Why that φ-function and not another one? More discussion and motivation is needed in that respect.

c) In the same line: why is it necessary to transform *ρxy* via the function shown in equation (2.5)? Why can’t we work with *ρxy* straightaway as the authors indeed do in the empirical section?

d) Again, some motivation seems necessary when introducing the concept of “closest crisp relation”. Why is it introduced? Why is it important?

2. The empirical section of the paper is rather poor. On the one hand, since the number of dimensions is only 3, I feel that the results in Table 2 could have been calculated using much simpler tools (i.e.: calculating areas in an equilateral triangle that is separated in two regions by a straight line) without resorting to Proposition 1. If there were 4, 5 or more dimensions, the computations would be much more complicated and would require the use of equations (2.22) and (2.23). Indeed, the authors themselves state in section 2.3 that “But the general case with *n*>3, *ρxy* cannot be depicted graphically and the method of computation for *n*=2 and 3 is no longer workable”. Therefore, an empirical illustration with *n*=3 does not seem to take full advantage of the results of the paper.

In addition, the choice of 6 countries in Table 2 is not particularly illuminating and I think it could be enriched in several directions. Perhaps it would be more interesting to apply the methodology to “the entire set of 177 countries” and observe what patterns emerge. A priori, one would expect that the higher the difference between the respective HDIs the higher the level of the corresponding truth-value. Maybe the two variables (differences in HDIs and truth values) could be jointly plotted in a scatterplot for all couples of countries to see how they relate.

*Minor comments*

1. Albeit in a somewhat different context, the notion of ‘admissible weights size’ discussed around equation (2.3) was also discussed in Permanyer (2012, page 63), “Uncertainty and robustness in composite indices rankings”, *Oxford Economic Papers* 64:57-79.

2. I guess it is because of computational feasibility/convenience, but the authors should explain why they choose exponential random variables in order to obtain independently distributed variables in equation (2.9).