

**Response to comments on “Country Inequality Rankings and Conversion Schemes” [Anonymous - Referee Report April 03, 2012 - 10:09]**

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First of all, we would like to thank the referee for the detailed comments. We think that the suggestions will help us to improve the paper, and we are confident that we can address them accurately.

The report basically contains three critical remarks that we will address below.

*Ad 1: The paper “missed an opportunity to thoroughly explore issues in equalizing incomes.”*

Indeed, there is a long discussion on the selection of appropriate equivalence scales, and their various alternative specifications. In our study we use a particular equivalence scale (the Buhman et al. (1988) equivalence scale) as an ingredient for examining a methodological question, i.e. whether country inequality rankings are sensitive to size vs. needs weighted household units. To the best of our knowledge, such a systematic empirical comparison has not been provided in previous empirical research.

In this sense, equivalence scales “only” serve as an ingredient. Indeed, we could have used any equivalence scale, but we have opted in favor of the Buhman et al. equivalence scale for three reasons. First, it is simple but flexible enough to systematically scrutinize the sensitivity of country rankings to the supposed level household-size economies. Particularly, the whole range from absence to perfect household size economies can be captured by variation of a single parameter ( $\theta$ ), so that we could provide country rankings for any level of household-size economies. We believe that this issue is particularly interesting as needs and size weighting become equivalent procedures when  $\theta$  is assumed to be equal to one. Second, the Buhman et al. equivalence scale is an income independent equivalence scale, and thus fits in the axiomatic framework of Ebert and Moyes (2003) that is underlying our empirical analysis (for details see next paragraph). Third, including other dimensions, e.g. differences in the needs of adults or children, would really complicate a concise presentation of results.

In a revised version, we will better motivate the choice of the Buhman et al. (1988) equivalence scale. Moreover, as recommended in the report, it could include a section on the estimation of equivalence scales (and related difficulties).

*Ad 2: The paper “could have done with a discussion of the issues and an attempt at looking at equivalence scales that varied with the size of equalized income.”*

Considering needs differences for “rich” vs. “poor” households is, of course, interesting. Indeed, one author of the present paper has published a number of papers on the dependence of equivalence scales on income. However, as argued above, adding a further dimension along which equivalence scales may vary would hamper a concise presentation of results.

We have opted for an income-independent equivalence scale (an equivalence scale that meets the independence of base (IB) or equivalence scale exactness (ESE) identification assumption) for a methodological reason. Our empirical study was inspired, amongst others, by the axiomatic contribution of Ebert and Moyes (2003) on the implications of alternative weighting schemes. One key result of Ebert and Moyes' (2003) is that "reference independence"<sup>1</sup> is violated once income-dependent equivalence scales are considered. Accordingly, had we used an income-dependent equivalence scale, country rankings might depend on the weighting scheme and the supposed level of household-size economies (both issues are explored in the paper) but also on the definition of the reference household.

Considering income-dependent equivalence scales in inequality analyses is clearly interesting. However, in the present work we would like to restrict the analyses to equivalence scales meeting the IB/ESE assumption for reasons outlined below.

A revised version, however, could give references to recent literatures on the dependence of equivalence scales on income, and these could be integrated in the section on the estimation of equivalence scales (see above).

We understand that as of now the choice of the equivalence scale may seem rather ad hoc to the reader. Therefore, in a revised version we would motivate our choice more reasonable and motivate the choice of an income independent equivalence scale with the axiomatic framework underlying our investigation.

*Ad 3: Only two equalizing schemes have been employed.*

This point is not correct. Indeed, Tables 1a and 1b, Tables 2a and 2b as well as Table 3 of the paper provide results for two levels of the equivalence-scale elasticity only, i.e. for  $\theta=0.5$  and  $\theta=0.25$ . Moreover, Tables 4 and 5 display our results not only for these levels of  $\theta$ , but for two selected countries (France and Sweden). However, this is for expositional reasons only and the computations have been carried out for all levels of  $\theta$  and all countries. Indeed, in Figures 1 and 2 results for the whole range of admissible values of  $\theta$  can be found, i.e. from zero (perfect household-size economies – any number of persons can live as cheap as one) to one (absence of household-size).

In the revised version, we would highlight that results are provided not only for two levels of  $\theta$  but for the entire admissible range, and that results presented in Tables 1a and 1b, 2a and 2b, as well as Tables 3, 4 and 5 have been prepared for expositional reasons only.

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Apart from these three points, two further issues are discussed in the report.

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<sup>1</sup> Reference independence requires that "other things equal, the ranking of situations does not depend on the particular chosen reference type" (Ebert and Moyes (2003), p. 328). In our case, the reference type is the one member household.

First, the report outlines the controversies concerning the approaches/techniques to estimate equivalence scales (e.g., from household expenditure data). We perfectly agree. However, the present work is not on the estimation of equivalence scales. We use equivalence scales as an ingredient to address the methodological question how different conversion schemes (needs vs. size weighting) impact country inequality rankings. For this reason, we interpret these sections in the report as a motivation to add a passage on the controversy on the “appropriate” estimation techniques and specifications of equivalence scales to the paper.

As recommended by the Reviewer, a revised version would incorporate a section on the estimation/identification of equivalence scales and related difficulties.

Second, it seems to us that a misunderstanding has arisen regarding the following statement that can be found in the introduction of the paper: “There is a broad consensus regarding the adjustment of household incomes via equivalence scales.” The Reviewer interpreted the sentence in the sense that we wanted to suggest a consensus concerning an “appropriate” equivalence scale existed. For good reasons the Reviewer disagrees. However, this is a misunderstanding (due to an imprecision in our formulation). Instead, we wanted to point out that in the inequality literature a broad consensus exists regarding the general need to adjust household incomes for differences in needs (by means of equivalence scales).

In a revised version, the statement will be clarified.

References: All references can be found in the article.