

Responses to comments provided by two referees and by an invited reader.

I- Response to anonymous referee report 1.

Thank you for your general assessment of our paper and for your suggestion to revise it. We have strived to revise it by taking into account both your comments and those of the other two referees. We indicate briefly below how we have done this.

- a) *“Would it be possible to reduce the volume of section 2?”* We have been asked by the other two referees to develop that section in order to make it more readable; it has therefore not been possible to reduce it significantly, though we have tried to correct a few sources of confusion.
- b) *“There are too many figures and some are difficult to visually capture. One way to reduce their number is to plot only the differences and not the curves.”* It is true that the paper contains many figures. After some reflection, however, we have ended up maintaining them since we thought that was the only reasonable option for the results to be understandable by readers. To plot only the differences would have enabled comparisons across time but would not have shown the extent of poverty found in each country at the two different time periods (this, we felt, was important information to provide).
- c) *“The bidimensional differences are easier to visualize for the cases where the bounds are not plotted.”* We feel it was important to show the confidence areas in order to perform tests of dominance (where the data made such tests possible). In cases such as Figure 8, it may not be terribly important to distinguish across the three surfaces; the more important thing to note then is probably that all three surfaces lie below zero, and that there has therefore been unambiguous pro-poor growth across the two years. For other Figures, such as Figure 14, the surfaces do indeed run across the zero threshold, and that is important information to note since it leads to non-dominance.
- d) We have dealt with the other minor editorial changes that you suggested. Thank you for pointing them out.

II- Response to anonymous referee report 2.

Thank you for this very useful set of comments. We are of course pleased with the positive general assessment you have made of this paper.

In general, we have strived to improve the readability of Section 2, as you have suggested, and we have also made several other changes following your guidance. We summarize below those changes.

- a) *“Other poverty indices will almost always react quantitatively differently”*. Thank you, we have clarified this and provided an example.
- b) *“For instance, the absolute pro-poor view [...] relative impact of growth”*. Thank you; we have clarified this as suggested.

- c) *"The authors should first define what is an absolute and relative welfare indicator (a, r). Are those individual indicators?"* Thank you, this has been done.
- d) *"We also wish to focus on those with the greatest degree of overall deprivation".* This was indeed confusing. We have reordered the text and tried to make it clearer that two indicators of individual well-being are possible (though not necessary). We now first start with the lambda function, which is the identification function, and then introduce the pi function, which allows for calculating the aggregate index of poverty.
- e) *"The paragraph beginning with 'Consider Figure 1', would be improved..."* Thank you, we have added these useful references.
- f) *"who exactly should be deemed to be poor..."* That was indeed a mistake as well as confusing; thank you, we have corrected it. We have also made more explicit the presentation of the various elements needed to compute the aggregate poverty index.
- g) *"someone with income y in a distribution j ".* Thank you, we have also corrected this.
- h) Thank you; we have made the changes to the $a(y)$ expressions.
- i) We have also clarified the sentence starting with *"Since this is necessary for joint absolute and relative"*.

Thank you again for your valuable comments and most appreciated guidance.

III- Response to anonymous referee report 3.

We appreciate the positive general assessment you have made of this paper. We are also grateful for the detailed sets of comments that you have provided. We summarize below some of the changes we have made in response to those comments.

- a) We are now making a reference to the pro-poor growth debate that has been collected in a recent book by UNDP.
- b) We have distinguished in the introduction between GDP growth and household income growth.
- c) *"The discussion in section 2.1 reports the discussion..."* Thank you, we have provided examples and more details.
- d) *"The inter-temporal stochastic dominance approach does not say much about the size of growth."* You provide an interesting example in which the methodology that is used seems not to do justice to the perhaps greater ethical importance of absolute pro-poor growth. In the context of the dominance methodology, however, both absolute and relative pro-poorness are important; a greater degree of absolute pro-poorness cannot therefore compensate a lower degree of relative pro-poorness. It would be possible to build a framework in which absolute pro-poor growth is more important than relative pro-poor growth, perhaps in a lexicographic matter. This, however, would be beyond the scope of the paper.
- e) *"In the third scenario, the poor grow by 15% and the rich by 15%. This would be pro-poor in absolute terms but not in relative terms. Surely, the poor would have a clear preference set with the third scenario coming first followed by the second and first scenario"*. That may indeed be the preferences of the poor, although this is not what is

assumed in the dominance setting. The assumptions are that both absolute and relative pro-poor growth may be deemed important, and that it is not known *a priori* which one is more important than the others. At the limit, therefore, it may be that all of the pro-poor assessment weight is put on relative pro-pooriness, in which case the third scenario is not necessarily better than the two others.

- f) *“The application in section 3 mixes data sets of original individual data and data sets reconstructed using Lorenz curve coordinates.”* The application does indeed mix two types of data sets. We have done this in order to gather a relatively wide set of country data sets, and countries of different regions and different growth experiences, as is now stated more explicitly in the text. Our experience is also that the Lorenz reconstructed data were quite reliable, although they do not allow for the calculation of standard errors.
- g) *“The paper claims to compare countries using PPPs and a consistent poverty line...”*
Thank you for making these points. We have adjusted the text in order to incorporate the editorial suggestions that you make.
- h) We have also taken into account the more minor points that you made. In particular, we are now making clear in the text that the unidimensional graphs are in fact the lateral views of the bidimensional graphs, as you correctly indicate.

Thank you again for your kind and helpful remarks.