Report on "Sufficient conditions of stochastic dominance for general transformations and its application in option strategy", by Jianwei Gao and Feng Zhao

This is an interesting paper that extends our knowledge of conditions implying stochastic dominance at first or second order. It is especially useful in that it corrects the conditions for stochastic dominance given in 1992 by Levy, by providing a counter-example to one of the conclusions of a theorem in Levy's paper, and then providing less restrictive sufficient conditions for both conclusions of this theorem. The analysis appears to me to be correct.

Just a few comments and suggestions.

1. The last sentence on page 4 begins with the word "Obviously". I'm not wholly convinced that it is always more convenient to work with conditions that involve the density rather than the CDFs. It's true that the subsequent development does bear out the conclusion, but I didn't find it "obvious" on a first reading.

2. In the second last line of section 2, on page 5, I'm not sure what is meant by "inevitable". Should the word perhaps be "necessary"?

3. Starting on page 7, the text refers to the concept of increasing risk. I think that a formal definition of this concept is needed here, or else readers will either not follow the discussion or else have to go off to consult some rather old references.

4. In the section on option strategy, the authors frequently use the term "striking price", but I have never heard it so called; rather it is normally "strike price" or just "strike".

5. I wonder if Appendix C, with its explicit proof of Theorem 3, is really necessary. I would be tempted just to say that the proof is very similar to that of Theorem 2. If there are a few crucial differences, they could be mentioned without having a full-blown proof.