Yes, we should discount the far-distant future at its lowest possible rate: A resolution of the Weitzman-Gollier puzzle Response to Invited Reader 1

Many thanks for your comments on my paper. In reference to your three points:

1. This is the set-up for the paper and therefore I agree that this is not a contribution, although, to my knowledge, the link with Cox, Ingersoll & Ross (1981) — which is a well-known paper in financial economics — has not been made before.

2. Previous resolutions of this debate have either relied on arbitrary evaluation dates (Hepburn & Groom) or a risk-averse social planner (Gollier, Buchholz & Schumacher). My methodological contribution is to extend this to a risk-neutral social planner, which brings the problem back to the Weitzman-Gollier world. As I explain in my reply to Referees 1 & 2, this directly addresses a question asked by the third anonymous referee to the discussion paper version of Gollier (2009).

   In addition, previous resolutions have concentrated on reconciling $r_d(T)$ with $r_c(T)$. I, by contrast, focus on evaluating the ENFV criterion $D_T - p\exp(r_c(T)T) > 0$ against the ENPV criterion $D_T\exp(-r_d(T)T) - p > 0$. As these two criteria are inconsistent for a project where (for example) the future cash flow $D_T = p\exp\left[(r_c(T) + r_d(T))\,T/2\right]$, which should the social planner prefer? My focus on Criterion 1 of Gollier (2004) places a different emphasis on my paper to previous work.

3. Demonstrating the weakness of the ENFV criterion is my main result. My conclusion that Gollier (2004) is "wrong" while Weitzman (1998) is "right" is fundamentally different from recent studies in the area, which conclude that both techniques are right or that Gollier is to be preferred. Clearly, though, as the ENPV and ENFV criteria potentially conflict, they cannot both be consistent with expected utility maximisation. This is the central point of my paper.

   Theorem 1 of my paper does prove this point within a pure-exchange version of the Weitzman-Gollier set-up. I refer back to my reply to Referees 1 and 2 for a discussion about other potential economic environments. Sections 3.2–4 of the paper, which use different frameworks (such as Jacquier et al. 2003, 2005) are added to provide an understanding of the weakness of the ENFV criteria. The central point with Jacquier et al. (2003, 2005) is that the ENFV is an upward biased measure of realised future wealth from investing in a rolling portfolio of T-bills. By combining this result with Ang and Liu (2004), the asymmetric effect of interest rate uncertainty on compounding and discounting is illustrated. From all three comments I have received to date, though, it is clear that this has not been effectively communicated in the current version of the paper. I apologise for the confusion caused by this and I will make every endeavour to clarify this issue in the next version of the paper.