

Author's respond to the comment of Reyer Gerlagh

I wish to thank Reyer Gerlagh for his comment. Further, I wish to mention that I added a revised version of my paper to the response to Richard Tol's comment, which incorporates the insights from his criticism on my earlier version.

As far as I understand, there are three possible ways to justify dual-rate discounting, which are:

- (i) Assuming environmental resource scarcity, as I assumed in my paper.
- (ii) Assuming the income elasticity of demand for environmental quality to be larger than one, as Tol (2004) suggests and, according to Tol (2004), Hasselmann et al. (1997) also suggest.
- (iii) Assuming a lower utility discount rate for environmental quality than for goods consumption, as Yang (2003) and according to Reyer Gerlagh, Hasselmann et al. (1997) also suggest.

Justification (i) and (ii) have the advantage that they are also consistent with the claim of Richard Tol in his comment to the earlier version of my paper that adjusting the discount rate for environmental concerns and adjusting the impact function for environmental concerns are equivalent. In contrast, justification (iii) requires dual-rate discounting and cannot be done with adjusting the impact function. Tol (2004) made clear that he does not like the justification of Yang (2004). In contrast, Reyer Gerlagh comments that only assuming a lower utility discount rate for environmental quality than for goods consumption gives enough credit to what the "inventors" of dual-rate discounting, Yang (2003) and Hasselmann et al. (1997), actually had in mind. Obviously, on this issue there is no way that I can please both commentators. However, Reyer Gerlagh's criticism is milder than Richard Tol's criticism and Richard Tol commented quicker. Therefore, I hope for Reyer Gerlagh's understanding that I revised my paper along the view of Richard Tol and left Reyer Gerlagh's view to a footnote in the revised version (footnote 5). Note also that I dropped the word "dual-rate" from my paper. Hence, I do not claim anymore that my paper is in the spirit of Yang (2003) and Hasselmann et al. (1997).

In addition, Reyer Gerlagh also commented as a side note that he thinks Neumeyer (1999) is right that substitutability is the problem. However, my paper shows that limited substitutability, by and large, reduces the discount rate. Hence, while my paper might not give enough credit to the concerns of Yang (2003) and Hasselmann et al. (1997), it does at least give credit to the concerns of Neumeyer (1999), which Reyer Gerlagh also shares.