

## REFeree'S REPORT: DISCOUNTING FOR CLIMATE CHANGE (2009)

This paper on discounting for climate change and the social cost of carbon would make a valuable contribution to the literature and, as such, merits journal publication. There is, however, scope for the inclusion of some additional material.

First of all, regarding the triple role of the 'income elasticity of marginal utility' there is a need to justify much more fully the selection of the same numerical values for this parameter in each of the three roles. There is a brief statement about this matter in the conclusion of the paper but it should be discussed more fully at an earlier point in the paper. A closer consideration of the various contexts in which empirical measures of this elasticity measure have been estimated would be useful. I would also suggest consulting a wider range of references concerning empirical estimates of this measure, especially as there is some evidence to suggest that the resulting empirical estimates are method-dependent. It would be useful to at least consider 2 articles in *Fiscal Studies*, Spackman (2004) and Evans (2005). Also, see Creedy and Guest (2008) in *The Economic Record*.

In relation to the parameter  $p$ , it might be useful to regard this utility discount rate as consisting, in fact, of 2 components: the pure time preference rate based on myopia and impatience, and an element for catastrophic risk. The former element lends itself to hyperbolic rather than exponential discounting, see Heal (1997), while the latter involves exponential, or at least quasi-exponential, discounting. At the very least, some reference to the work of Heal should be made and its potential significance in a long-term discounting context. HM Treasury (2003) guidance on CBA for the UK splits the utility discount rate into these 2 components: pure time preference and catastrophe risk.

At least brief reference should be made to the theoretical and applied work relating to declining marginal discount rates for the very long-term and its potential significance for the economics of climate change: see especially,

Gollier (2002) in *Journal of Public Economics*, Weitzman (1998) in *Journal of Environmental Economics and Management* and Weitzman (2001) in *American Economic Review*.

Providing each of the concerns raised in the paragraphs above are satisfactorily addressed then this paper should proceed to publication and make an important contribution to the literature.

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