Response to Second reviewer:

“Is this the first paper to compute the break-even carbon price, in the sense of the term you use?”

Apparently not, I will amend the references to the ‘useful concept of a break-even carbon price’ to the ‘break-even carbon price’ and cite as an earlier reference Fukurozakia et al., (2013). I shall add a discussion of target-consistent carbon pricing as well in the revision.

“Regarding the difficulty of pinning down the social cost of carbon, arguably the estimation of monetary damages is at least as difficult if not more so than pinning down an appropriate discount rate. The symposium of papers by, respectively, Pindyck, Stern and Weitzman in the Journal of Economic Literature in 2013 is a useful source on this and Pindyck’s paper is a particularly strident statement of the difficulties faced by impact modellers.”

Noted, useful references to add in the revision listed below.

• At the end of page 6 the discussion segues from the argument that the price of carbon should be based on the (economy-wide) MAC, rather than the SCC, to the argument that one needs to calculate the break-even price of carbon in the electricity sector specifically. There are a couple of intermediate steps here relating in particular to the role of electricity in decarbonization I think, and it would be good to restate them here.

“I think there is scope to make sub-section 2.3 a little easier to read. In particular, could the analytical results obtained on p11 be summarized in a table, i.e. the partial derivatives and their expected signs?”

Table 4 gives these – it may be worth signalling that after equation (5) in the proposed revision.

“I felt that, since the concept of the break-even carbon price is the central contribution of the paper, more analysis of its value and sensitivity to input parameter values is called for. At the moment we only see two among many pair-wise comparisons, so we don’t see the full picture.”

Fair point, but the main purpose is to set out the methodology, which can be more widely applied (as it has been elsewhere), and concentrate here on salient choices in the electricity sector.

“In section 3 the paper argues, correctly in my view, that the carbon price should be predictable and uniform. It also argues, logically, that the break-even carbon price is highly sensitive to uncertain variables. But it does not immediately follow that the carbon price based on the break-even carbon price lacks credibility (p19). To my mind this depends on an implicit view that the government lacks the ability to commit to a carbon price, set using the break-even method, for a sufficiently long period of time thereafter, even if fundamentals like fuel prices change. One of the features of price/tax instruments in this context is that in

practice they can be somewhat ‘sticky’. If correct, this assumption of a lack of credible commitment needs to be stated.”

I agree and will expand on the relevance of a carbon price floor or support, as employed in the UK and proposed elsewhere, referring to Newbery et al., (2018)

Minor comments (to be corrected in the revision unless stated below)

“p2, 2nd paragraph: when writing “It is now widely accepted that the EU ETS has failed…” – while I agree wholeheartedly – it would be appropriate to provide some citations/sources for those interested in following up.”

Perhaps parochially I can add “see e.g. the references in Newbery at al., (2018).

References

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