Online appendix to

Discounting Disentangled

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COMPARISON TO WEITZMAN'S (2001) SURVEY

A natural reference comparison for our results is the seminal survey of Weitzman (2001), who asked more than 2000 Ph.D.-level economists to report a single appropriate *"real discount rate"* or *"rate of interest"* with which to discount projects aimed at mitigating climate change. The key difference between the response data of Weitzman (2001) and our results is that we find a substantially lower mean (median) SDR recommendation, with 2.27 percent (2 percent) compared to 3.96 percent (3 percent). Furthermore, we find a much lower standard deviation of the SDR responses of 1.62 percent compared to the 2.94 percent of Weitzman's (2001) respondents, and the range of point recommendations on the SDR is much more condensed (0 to 10 percent compared to -3 percent to 27 percent).[1] The modal recommended value for the SDR of 2 percent, however, is the same in both surveys.

We can point to at least three potential explanations for these differences. First, experts who have graduated from their Ph.D.s since Weitzman's survey was conducted generally recommend lower SDRs than those who have been in the profession for longer. Second, the literature that has influenced this new generation of academics — for example, on declining discount rates and the arguments articulated in the Stern Review — may have led more established scholars to reduce their SDR recommendations during their careers. Third, Weitzman's pool of potential respondents is a general economics audience, while we select only those scholars who have published directly on discounting and can be considered specialists in this sense.

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[1]The standard deviation, minimum and maximum of the imputed SRRs (3.52%, -2% and 26% respectively) are, by contrast, similar to the values reported in Weitzman (2001).

FURTHER DETAIL ON THE SELECTION OF EXPERTS

Based on full-text analysis in the Google Scholar engine, we searched the 102 leading economics journals (according to the ranking of Combes and Linnenmer 2010) plus the Review of Environmental Economics and Policy for publications since the year 2000 including the terms 'social discounting', 'social discount rate' or 'social discount factor' (in March/April 2014). As a result, we identified 778 potential experts. As not all pertinent contributions to the field use the term 'social discount rate', but often 'real discount rate' or simply 'discount rate', we further performed an EconLit search for the term 'discount rate' (in April 2014). To avoid picking up a large number of papers that only mention 'discount rate' in passing somewhere in the paper, we limited the scope to a within-abstract search. This search yielded an additional 241 potential experts. We thus identified a total of 1019 unique potential experts. We then manually discarded – using a weak relevancy test – publications that are clearly not of direct relevance for our study. The criteria used to judge whether a publication is not relevant are listed below:

- If the search phrases do not appear in the article itself, but only in the reference list.

- If the publication is a book review or another non-original contribution.

- If a value for the SDR is simply applied in an analysis without reference to the literature.

- If one of the phrases is mentioned but not elaborated on.

- If the publication relies on a discount rate that is clearly not relevant to long-term social discounting by governmental bodies, such as discounting of profits or university fees.

A publication is labeled irrelevant if it meets at least one of the listed criteria. If at least one of the publications of a scholar is regarded to be relevant (i.e. passes this weak relevancy test), he or she is considered to be an expert. As a result of the above relevancy test, we exclude 365 scholars from the pool of potential experts, thus being left with 654 potential experts. For 27 of these scholars we could not obtain an e-mail address because, for example, they have left academia or are deceased. Our final population of potential experts thus contains 627 experts.[2]

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[2]Although potential experts have published in leading economics journals, a small number of them do not have a Ph.D. in economics but come from diverse fields, including law and the natural sciences.

E-mail Text

This Appendix provides the text of the initial e-mail introducing experts to the online survey.

Dear [Personal identifier],

We are targeting a select group of academics with expertise in social discounting. The objective is to elicit recommendations on fundamental issues of discounting to inform long-term public investment decision-making.

We would be most grateful if you could find the time to complete the very short survey appended below.

https://www.surveymonkey.com/s/discounting-survey

Your individual response will be held in the strictest confidence.

Many thanks for your time and cooperation,

Ben Groom (LSE), Moritz Drupp (Kiel, LSE),
Frikk Nesje (Oslo, LSE), Mark Freeman (Loughborough)

FURTHER CHECKS OF NON-RESPONSE BIAS

We carried out a series of robustness checks to test for potential non-response bias (see Johnson and Wislar (2012) and Necker (2014) for discussions of different testing strategies).

In the main body of the paper, we first compare our 185 quantitative responses with a random sample of 60 potential experts who had not replied by November 2014. Second, we compare our 185 quantitative responses with the sub-sample responses of the Resources for the Future (RFF) Arrow et al. (2012) panel on intergenerational decision-making. Third, we consider differences in observable characteristics – academic age, location and gender – among respondents and non-respondents. A related check is to test for self-selection of environmental economists into responding.[3] Indeed, we observe that they do: 48% of respondents are environmental economists, while only 33% of the non-respondents are environmental economists. Yet, we find that environmental economists' mean and median SDRs are not statistically signficantly different (at the 10 percent level) to non-environmental economists.

Table D1—: Alternative Comparison of Early and Late Responses

	g	δ	η	r	**Normative**	**SDR**	**SDRmin**	**SDRmax**
Split by time of response in SurveyMonkey								
Results from the 88 early responses								
Mean	1.63	0.93	1.44	2.42	61.72	2.18	1.07	3.89
Median	1.50	0.50	1.25	2.00	70.00	2.00	1.00	3.25
N	88	88	85	88	88	87	88	88
Results from the 88 late responses								
Mean	1.81	1.26	1.27	2.38	61.00	2.34	1.17	4.38
Median	2.00	1.00	1.00	2.00	68.50	2.00	1.00	3.50
N	85	85	83	81	88	87	87	87

Lastly, we consider differences between experts who responded to the initial wave, and those who responded to a reminder. In Table 3 we report the results of a comparison of those who had responded to the first survey and those who had

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[3]We regard an expert to be an environmental economist if the publication that led us to select her or him as a potential expert is in one of: American Journal of Agricultural Economics, Ecological Economics, Energy Journal, Environmental and Resource Economics, Journal of Environmental Economics and Management, Land Economics, Resource and Energy Economics, or Review of Environmental Economics and Policy.

responded to a reminder to obtain a further indirect measure of potentially biasing participation. At the 10 percent level of significance only the mean forecasted per-capita growth rate and recommended social rate of pure time preference are different between the samples of early and late respondents. The mean forecasted per-capita growth rate and recommended social rate of pure time preference are higher for the sub-sample of respondents that required a reminder. On the other hand, the median recommendation on the elasticity of marginal utility is the only median response significantly different between the subsamples, with the median of those responding immediately being higher. As a robustness check, we also divided early and late respondents into equal sized groups and found that the results were similar. The results of this additional exercise are reported in Table D.1. While we find some effect for those requiring a reminder versus those that responded right away, we do not find significant differences in mean and median recommendations and forecasts when we split the whole sample into equal halves and consider early and late respondents based on this definition.

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