Author response to referee comments

Energy, expenditure, and consumption aspects of rebound, Part II: Applications of the framework
(23-008)

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Part	Comment #	Comment	Authors' response
2 - Results	8	I think the paper could be shortened slightly if the diagrams were not given a separate introduction, but just applied for the first time with numbers from the lamp example, as I think they're "close enough" to the pattern of the theoretical example to do its job.	Thanks for this suggestion. We removed the "notional" rebound planes. In the section where we initially describe the energy, expenditure, and consumption planes, we now refer to the quantified graphs in the results section. As you surmised, this change reduces the length of the paper. Thanks!
2 - Results	9	I realise the first two lines [on the path graphs] are almost superimposed on the energy diagram, but you could do the expenditure one first – that actually has some logic, since consumers are allocating money and the energy consequences stem from those decisions. The consumption diagrams are arguably also "causal", but they won't be as easy for any reader who hasn't done intermediate micro, so I'd keep them last.	Thanks for this thoughtful comment. We agree that allocation of money to the EEU kicks off the rebound effect. But we decided not to change the order of the path graphs, because the paper is about rebound, which is visible in the energy plane, which takes its place at the front of the queue. That said, your comment made us note that we did not explain the order of the path graphs. So we added a sentence in the Visualization section to explain the order. The sentence reads: The order of presentation below is energy first, followed by expenditure, ending with consumption, because the EEU triggers rebound (the topic of this article and visible in the energy plane), but is caused by expenditures on the EEU and further monetary adjustments (visible in the expenditure plane), which are calculated via details about substitution (visible in the consumption plane).
2 - Results	10	In table 2, which author thought it important to say that income was neither $27,929.82 nor $27,929.84? "$27,930" is easier to read and surely accurate enough.	Thanks for noting the unnecessary precision in our values. We now round to whole dollars in Tables 2 and 5.

2 - Results	11	Tables 8 and 10 would be clearer if the headings were "original", "non-behavioural", "plus substitution", "plus income" and "total" (or something similar).	Thanks for this helpful comment. We changed the headings to "Original", "After empl", "After sub", "After inc", and "After macro". The decorations remain, as a helpful guide to the reader. The abbreviations (empl, sub, inc) match subscripts used throughout the paper.
2 - Results	12	I'm very worried about your calibration of k in section 4. You're using it as a kind of Keynesian multiplier, but you've decided to calibrate to replicate results of CGE models in which employment is often full (I have no idea what these particular models are assuming) and I suspect a lot of the "action" comes from changes in relative prices for energy (per MJ) and other goods – which you don't study. That feels like a very dangerous mismatch. Since you have some other numbers you could use for k, taken from a more compatible literature, I'd recommend you do so.	Thank you for this perspicuous comment. We agree that the mentioning of Keynes and reference to fiscal multipliers is confusing, since this is a supply side shock from technical progress, not a Keynesian demand side one. Your comment prompted us to revisit the literature on the macroeconomic implications of sectoral productivity growth, where recently some papers have estimated 'sectoral multipliers', that show that sectoral productivity growth can lead to much larger aggregate effects, and that build on the recent seminal work by Acemoglu et al. (2012) and Baqaee and Farhi (2019). We now cite this - as you say - more compatible literature to motivate our macro factor k in Part I. In Part II we use results from these recent estimates of sectoral multiplier to pick a value for k, noting that our pick is very preliminary and will need further work in this dynamic reserach field to ascertain what values would eventually be appropriate. The value of k is NO LONGER CALIBRATED in the paper, as we use a value of k from the cited literature. At the same time, our results for total rebound are more comparable to those from previous CGE models, as both our and the CGE models are fully supply-side driven, assuming full employment of production factors. Thanks again for prompting us to read up on this recent literature.
2 - Results	13	On the other hand, it's great to see the table comparing your results with those of other studies (but worrying to see such a wide range of numbers).	Thanks for noting our comparison table. Indeed, the wide range of rebound estimates forms part of the motivation for this paper. We're trying to minimize this variation. We hope that the framework we developed encourages analysts to carefully consider and clearly communicate both input data and assumptions.

We made no changes in response to this comment. |