November 14, 2022

Dear Mert,

Thank you for resubmitting your paper "Production Function Estimation with Factor-Augmenting Technology: An Application to Markups" (MS 19299-2) to *Econometrica*.

The bottom line is that I am going to ask you to revise and resubmit the paper. However, even though you clearly put work into the revision and the referees have generally gotten more positive, the revision is quite sloppy in several ways. Frankly, we have a way to go before the paper is ready for publication and unless you do a better job in the next round I will have to reject the paper.

I sent the paper to the three original referees. R1 previously recommended that I reject the paper and now choose the "weak revise and resubmit" option. The cover letter makes it clear that the referee is going along with my previous decision but still does not think the paper belongs in *Econometrica* for pretty much the same reasons described in my previous decision letter. I am not sure that you will be able to convince the referee, but regardless you should address the points the referee makes since many overlap with the concerns of the other referees (as well as my own comments).

R2 is generally happy with the version and provided some comments to improve clarity. The referee would like you to be clearer about the use of revenue instead of physical output. The referee even suggests focusing on the Indian data in the application. I agree that you should be much clearer about the use of revenue vs quantity, but I think you can do that by editing the current discussion rather than only using the data from India. There is clear benefit from seeing the results from the different data sets.

Finally, R3 continues to be positive but thinks that a lot more work needs to be done before the paper is publishable and that your responses were a bit sloppy at times. The referee offers detailed comments on both the theory and the application.

My reading of the paper is closest to R3: I think that some version of the paper belongs in *Econometrica*, but that you have a fair bit of work ahead of you to get there. At a high level I see several issues. First, you need a somewhat clearer separation between the method part of the paper and the application. I think if you could do that and "cleanup" the method part you might get R1 to be a bit more positive. Second, you need to be more precise in your claims and writing. One way or another all the referees commented on the lack of precision in various claims. You tend to make claims, both in the theory and the application, that are not fully supported. You also tend to have somewhat incomplete discussions that will be unclear to researchers who are outside the field. The referees provide many examples. In the revision it is crucial that you not only address the letter of these examples, but also the spirit (i.e. anticipate future comments.)

I do not have much to add, besides providing a few more examples of places where you need to clean up the presentation.

Abstract. You can probably delete the first two sentences. The third sentence should start with "I develop …"

You can probably delete the word "novel" in most places you use it.

Section 1, 1st paragraph, 2nd sentence. Please provide citations.

Page 2 first paragraph. What does the cite to DL refer to?

Page 2 second paragraph. The description of the proxy variable versus control variable approach is unclear. Maybe it is too early to go into details, but a reader that is unfamiliar with the methods is unlikely to follow. Consider down tuning this contribution. Do you ever show that it matters? What do you gain by using the full conditional independence?

I was surprised that you do not even mention the Bond et al non-identification result. You need to take this head on, as suggested by the referees.

Footnote 3. What is the implication of the claim?

Page 6 2nd paragraph last sentence. What does "This" refer to? The previous sentence talks about one factor-augmenting productivity and a flexible input.

Page 6 last paragraph. You repeat the claims here multiple times. No need to be repetitive.

Consider making part (iii) of assumption 2.1 a separate assumption. For (iv) you mix a definition within the assumption.

You can probably delete the paragraph before Proposition 2.1

Top of page 11, why LP and not OP?

Section 4.2. This is an example where you mix the theory with the application. You seem to be focused on deriving the theory for the application rather than more generally.

Page 18. I believe that the idea of using FOC is much older than the literature you cite. I might be wrong, but didn't Jorgenson use these ideas in the 70's?

I found it a bit unappealing that you changed several things between your different models. For example, jumping between Translog and CES. Or using different identifying assumptions for the CD and Translog (see fn 24).

I generally agree with R1 and R3 that your presentation of the application could use more work. The referees offer specific comments on ways to improve the presentation.

You could probably delete quite a few of the footnotes without much loss.

Overall, this should generally be a doable revision. However, it is crucial that you make significant progress in the discussion and clarity. If the referees have the same sort of comments in the next round I will have to reject the paper. In other words, it is important, that you deal with the spirit of the comments not just the specific examples. When you resubmit, I will send the paper back to the referees and essentially ask for a thumbs up or down recommendation.

Please note that we aim to have revisions back within a year.

Sincerely,

Aviv Nevo,
Co-Editor, *Emeritus*, *Econometrica*