

**Response to the comments and suggestions for  
"Economics-2556"; DP-2018-19.**

I am grateful for your helpful comments and suggestions to which you will find below my responses. In particular, all your comments and suggestions are well taken and the paper will be revised accordingly.

**Reviewer 1's comments:**

1. *Page 2: The statement "multinationals are expected to prefer exporting over horizontal FDI that duplicates the production process in a foreign country" does not reflect the results in the literature. For instance, Helpman et al. (2004) show that it is the productivity of firms that determines the optimal model of internationalization. And also the proximity concentration tradeoff implies that there are two opposing forces that make it a priori unclear whether firms prefer exporting or FDI.*

Sorry for the confusing statement; you are right: according to the proximity-concentration trade-off (e.g., articulated by Brainard, 1993; 1997), undertaking FDI forgoes economies of scale at the plant level (as firms incur plant-level fixed FDI costs to locate their production and services close to consumers). That said, by undertaking FDI, firms can benefit from firm-level economies of scale (generated by their intangible assets) at almost no cost and can avoid trade-related costs. In general, the literature has shown that horizontal FDI (that duplicates the production process in a foreign country) is encouraged by large market size, high trade and transport costs and low plant-level fixed investment costs (e.g., see Navaretti and Venables, 2004). That is, there is a threshold fixed investment cost, denoted  $F$  (the level of which is determined by market size, trade costs, and firms' marginal costs) below which horizontal FDI is more profitable than trade (e.g., see Antràs and Yeaple 2014). Alternatively, in a trade model with monopolistic competition and firm heterogeneity, Helpman et al. (2004) show that there is sorting by productivity thresholds determining firms' foreign market entry modes. By the same token, in a simple linear Cournot model with constant marginal production costs and firm heterogeneity, it is straightforward to show that (e.g., see Koska et al. 2018), unless

there is prohibitively large  $F$  (so FDI is not profitable for any firm), or unless there is negligibly small  $F$  (so FDI is more profitable than trade for all firms), for any  $F$ , there is a corresponding threshold cost type, denoted  $\lambda(F)$ , such that firms with marginal cost  $c^* < \lambda(F)$  will prefer FDI over trade, and firms with marginal cost  $c^* > \lambda(F)$  will prefer trade over FDI. This will now be made clear in a revised version of the manuscript.

2. *On the first page of the introduction the author only refers to own work. It should be possible to relate the paper also to other papers in the literature on M&As. A better literature review would definitely clarify the exact contribution of the paper.*

Thanks for this comment. A revised version of the paper certainly will try to provide with a better literature review relating the paper to other papers on M&As so as to flesh out the exact contribution.

3. *It would be good to briefly repeat what exactly is "Koska's (2016) novel interpretation of the consumer surplus standard".*

You are right; this will be made clear in a revised version of the manuscript.

4. *More intuition driving the main result would help the reader. What makes it really hard for the reader is the way of presenting results in the introduction. The sentences are way too long and very hard to read. For instance: second page in the introduction, where the first paragraph is in principle one long sentence.*

I am sorry that some parts of the paper was a hard read; a revised version of the manuscript certainly will do a better job by using simpler language and will provide more intuition.

5. *What are the new implications that we can learn from the model? Is it really important that firms are multinationals and that there is a border between the two countries? The two firms that want to acquire the monopoly firm can be domestic entrants. There is competition between acquiring firms in the IO literature so what is new in this model? This should be made clear because the author argues that competition between*

*the firms is the novel aspect of this paper! Given the fact that there are no export costs or foreign market entry costs in the model it is really hard to see what is the international context in this framework.*

The model focuses on two potential foreign entrants (with their headquarters outside the host country) competing for foreign acquisition of a local firm and scrutinizes the implications of imposing a minimum output requirement for cross-border firm acquisitions on foreign market entry behavior and welfare. The idea follows the observation that (i) multinationals do negotiate with host countries before their foreign market entry; and that (ii) certain production requirements can be imposed by host countries on foreign market entry. The novelty here is the strategic use of a consumer-welfare argument in regulating foreign market entry when multinationals compete for FDI in the host country. The model borrows the idea from the IO literature in which the focus is (i) on competition for domestic mergers among firms that are already operating in the same market; and (ii) on the application of a consumer-welfare argument as a competition policy practice. In the case of domestic acquisitions, any transfer of surplus among firms still contributes to total welfare. With foreign market entry, however, some surplus is transferred from local agents to multinationals and the model assumes that both multinationals do not retain their profits in the host country. That is, welfare implications would be different with a domestic entrant. That said, it will be clear in a revised version of the paper that given the focus of the paper, the model is structured such that the specifics of the model do not allow for domestic firm entry (e.g., some specific foreign intangible assets are required to penetrate a local monopoly/duopoly market, and local assets only together with more efficient foreign assets generate synergies and fulfill the minimum output requirement). Also in a revised version of the paper, it will be made clear that the model can accommodate some non-prohibitive fixed investment and trade costs, while the results will not change qualitatively.

6. *It would be interesting to see how competition in the host country would affect the results. How important for the (welfare) results is the assumption that there is only one monopoly firm in the host country?*

Thanks for this comment. In Koska (2016), there is *seller competition* (local firms compete to sell their business to a foreign firm), although there is only one foreign firm entering the host country. In contrast, this paper focuses on *buyer competition* (foreign firms compete to acquire a local firm). Norbäck and Persson (2008) take both types of competition on board (and they consider an oligopolistic market structure) and study different types of firm buyouts (domestic vs foreign and hostile vs preemptive takeover), although they do not consider a minimum output requirement for acquisitions, nor do they look at welfare implications. Following Norbäck and Persson (2008), under a minimum output requirement as detailed in the paper, it is straightforward to show that there is always a preemptive takeover so long as local firms are identical and foreign firms compete for acquisition of the same local firm. Our results still will qualify, though there will be some level effect, especially on outside profits and acquisition prices (firms' valuations). That said, introducing firm heterogeneity among local firms will complicate the model. The reason is that it is not clear whether the most (or the least) productive local firm will always be targeted for firm acquisition: for different constellations of parameter values different local firms may be targeted; see Pagnozzi and Rosato (2016) for the case of complete information, and Koska et al. (2017) for the case of incomplete information.

7. *The citation of Helpman et al. (2004) on page 4 is misleading. The productivity ranking is with respect to firms in the same country while here the paper compares productivity of firms hosted in different countries.*

You are right; it is, to some extent, misleading. The idea is that the literature on firm heterogeneity has shown that productivity differences among firms are mostly attributed to multinationality; see, for example, Castellani and Zanfei (2007) for evidence from Italian firms. It will be made clear in a revised version of the paper that the model assumes two foreign firms that have already maintained capacity in different countries and they owe their superior productivity to their large R&D investments and intensive use of professional and technical workers generating proprietary knowledge.

8. *I was a bit puzzled by the labeling of potential entrants as multinationals on page 4. Before acquiring the local firm they are not really multinationals, right?*

As I have already mentioned above, it will be made clear in a revised version of the paper that the model assumes two foreign firms that have already maintained capacity in different countries.

9. *Page 5: It is not really clear to me why there is a  $\pi_i^a$  when there is no  $q_i^a$ .*

You are right; this is confusing.  $\pi_i^a$  is mainly the acquisition price that is determined endogenously. This will be corrected.

10. *Page 8. At this point it is not clear how it can be that only one multinational has decided to acquire the local firm while the other does not. At this point the reader thinks that multinationals are completely symmetric. Only later it becomes clear that multinationals differ in their ex post productivity. This should be introduced earlier. On page 9 it comes a bit ad hoc that from now on the multinationals differ in efficiency.*

You are right; this should have been introduced earlier in the paper. This will be corrected.

11. *A bit more intuition what is the exact role of the minimum output requirement for the preemptive acquisition would be great. In my view this is a main result of the paper so some effort in working out the intuitive mechanisms behind that result would strengthen the paper.*

More intuition will be provided.

12. *There is probably a mistake in equation (9). It should be  $s \in (m, f, a)$ , right?*

Yes, it should be  $s \in (m, f, a)$ . This will be corrected.

13. *The first part of the welfare discussion seems to be not very novel. The result in Lemma 1 seems to be pretty standard.*

It is rather standard, indeed. This will be made clear in the revised version of the paper.

14. *If I understood correctly, there is an underlying quasi linear quadratic utility function. How is this utility function related to the welfare results?*

Yes, you are right. The model assumes that consumers have well-defined identical preferences that can be represented by a quasi-linear quadratic utility function. Given strict concavity in quantities consumed, this will generate linear demand. The quasi-linear nature of preferences makes sure that (i) income effects are negligible; (ii) consumer surplus is an exact welfare measure such that it coincides with the equivalent and compensating variations; and (iii) there is no aggregation problem (e.g., see Varian, 1992, Chapter 10). Another advantage is that it is highly tractable, and thus is commonly used not only in the IO literature, but also in the trade literature (e.g., see Ottaviano et al., 2002, and the references therein). While most results (including welfare implications) of this paper can easily be captured simply by an alternative demand function (generated by well-defined preferences represented by alternative utility functions), in the trade context, Ottaviano et al. (2002) already show that alternative formulations of preferences do not lead to significant differences in results.

15. *In my view what would be really interesting is relaxing the assumption of homogenous goods. I think product differentiation is on the one hand a very realistic assumption and on the other hand crucial for the welfare results. Given that products are differentiated and consumers love variety, the number of varieties is available in the end is crucial for welfare results.*

While product differentiation is a realistic assumption and can potentially generate some interesting results, it warrants a new model. The complication is that it is not trivial whether the acquiring multinational will become a multi-product firm, or will keep only the local variety, or will compete by its own variety only. This should be determined endogenously in a fully-fledged new model. I agree that such a model will be an interesting one and I would like to leave it to future research.

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