Referee Report on

IPR Protection and Optimal Entry Modes of Multinationals

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Banerjee and Biswas study the entry mode of a Multinational Corporation (MNC) in a Less Developed Country (LDC) and its relation to the Intellectual Property Rights (IPR) policy in the LDC.

In their model, a MNC may enter a LDC either partially (shift of assembling unit to the LDC) or fully (shift of assembling unit and technology to the LDC). Under partial entry, the MNC incurs transportation costs for transferring the semi-finished products to the LDC. The MNC faces the risk that a commercial pirate enters the LDC and produces copies of its product. It is assumed that those copies are of a strictly lower quality than the original product. Moreover, the probability of successful copying is assumed to be larger under full entry when the MNC's technology is located in the LDC. The MNC can protect itself against piracy by investing in an anti-copying mechanism (full versus partial protection). The government in the LDC sets the strength of its IPR policy to maximize social welfare. Here, a stricter IPR policy reduces the probability of successful copying by the pirate.

In this framework, the authors characterize the different equilibria and show that i) the MNC's anticopying investment and the rate of governmental IPR protection are inversely related, ii) governmental IPR protection may not deter piracy fully and iii) the MNC will enter the LDC fully if transportation costs are sufficiently important.

Main remarks

- <u>The paper is very cumbersome to read and difficult to understand.</u>
 - The paper is poorly written with many grammatical mistakes, typos and an unnecessarily complicated sentence structure.
 - The paper lacks a coherent structure. Sometimes results are stated in footnotes, that in other sections are mentioned in the main text (one example: p. 7, footnote 9 vs p.12, text after equation (19)). Similarly, some proofs are in the main text, others in footnotes or the appendix.
 - Propositions, proofs and sections have a poor layout. As a result, it is difficult to tell where a proposition begins or ends. The same applies to the proofs and subsections.
 - The reader is not guided through the analysis. The authors rarely outline their next steps or explain why they proceed in their analysis in the way they do. Moreover, many equations and several propositions are only stated mathematically, but not explained.
 - The graphs as well as certain mathematical expressions and equations are of a poor quality (layout/format wise) and have no coherent formatting throughout the paper.
 - The numbering of footnotes and equations is confusing and incoherent. At several points the wrong equations are referenced in the text (e.g., p.12, equation (20), p.12 equations (21) and (22)).

- Several footnotes contain results and comments that should be included in the main text body (among others: p. 10, footnote 17, p. 13, footnote 23, p. 16).
- Originality/relationship to the literature.
 - The paper appears to be highly similar to Mitra and Banerjee (Chatterjee) $(2014)^1$ (which is not mentioned in the references). In how far are the two articles different?
 - P. 4, footnote 7: The paper by Martinez-Sánchez (2007) is mentioned. How does it relate to present paper?

Further comments

- P.2: The authors mention that in contrast to Banerjee et al. (2008) their model considers vertical differentiation between the MNC and the pirate. In how far does this matter for the results?
- P.7: In footnote 8 it is mentioned that "It is assumed that w < c due to cheap labor in the LDC". What is c?
- P.7: When describing the modeling framework under partial/fragmented entry it would be helpful to mention that the presence of the parameter k is based on the assumption that the probability of successful copying is less likely under partial than full entry.
- P.10: The meaning of g^*_{frag} should be explained when g^*_{frag} is mentioned for the first time.
- P.13: It is stated that "[...] for a high θ_h if the first effect dominates, the social welfare will rise for a fall in 't". Intuitively, why is this the case (in particular, what is the role played by θ_h)?

¹ Mitra, N. and Banerjee (Chatterjee), T., 2014: Optimal Entry Mode for Multinationals with Possibility of Technology Diffusion. In: Ghosh, N.A. and Karmakar, K.A. (Eds): Analytical Issues in Trade, Development and Finance: Essays in Honour of Biswajit Chatterjee, Springer India, pp 37-62.