Referee's report: **The Effect of Technological Innovation on International Trade. A Nonlinear Approach** - by Laura Márquez-Ramos and Inmaculada Martínez-Zarzoso

The paper explores an interesting topic of international trade, i.e., the relationship between the technological achievement of a country and the value of its export. The originality of the approach steams from the adopted data sources – namely the TAI index developed by UNDP – and the robustness of the results is carefully assessed through a number of different econometric specifications.

I found the paper very interesting and generally well written, however I think a number of points need to be addressed before it will be publishable.

1) The emphasis on the non linearity of the relationship is probably excessive, given that it is assessed only by the mean of a quadratic term, which is quite a common practice in literature.

2) The sample selection is carefully explained but not motivated – why only 13 countries? Furthermore, the claim that the selected countries are "representative" may appear arbitrary, and a wider sample may significantly increase the robustness of the results, in the light of the following point.

3) The analysis is carried on at country **and** sector level but the reason for that is not clear to me – why not running the analysis also on the pooled sample at the country level (assuming the number of countries is increased)? To the extent that almost all the explanatory variables – and all the relevant ones – are grouped at country level, this seems a sensible option. The additional information on differentiated trade patterns according to the Rauch taxonomy can be exploited by aggregating export flows at that level, as done in the robustness tests, or by introducing interaction terms (e.g. sector variables interacted with TAI)

4) The fact that the four components of TAI and the synthetic index (i.e. the average of the four component) are included in the same specifications is probably causing important collinearity problems.

5) A number of issues arise from the IV specification. First, there is no way to see if they are strong, as first stage results are not mentioned. Second, I understand that two variables are used as instruments, while the endogenous variable are five (the TAI index and its four components), which is clearly leading to an underidentification problem. Third, the exogeneity of

the instruments is dubious, as they can be easily correlated with many omitted variables which may affect the export flows. In order to test exogeneity, I suggest to resort to the Hausman test (for overidentified specifications), rather than the one used in the paper, which does not seem to be very popular. Fourth, once the IV specification is correctly specified, it may be interesting to compare the results with the OLS ones, but this requires the specification to be identical, which is not the case in the paper.

6) Generally, omitted variables bias and reverse causality is a major issue, especially given the cross-section nature of the data, thus more work on points 5 may be highly rewarding in terms of robustness of results.

I hope the above comments may be useful for the authors, and I encourage them to further their work: as I mentioned before, the research question and data are interesting and can disclose new and interesting insights on the topic.